Animal and Plant Health Inspection Service
U.S. DEPARTMENT OF AGRICULTURE

Spongy Moth Program Manual

Some processes, equipment, and materials described in this manual may be patented. Inclusion in this manual does not constitute permission for use from the patent owner. The use of any patented invention in the performance of the processes described in this manual is solely the responsibility of the user. APHIS does not indemnify the user against liability for patent infringement and will not be liable to the user or to any third party for patent infringement.

When using pesticides, read and follow all label instructions.

New edition issued 2024

Spongy Moth Program

Contents

Spongy Moth Program

Figures

Spongy Moth Program

Tables

Chapter 1

Introduction

Contents

Purpose

The Animal and Plant Health Inspection Service-Plant Protection and Quarantine (APHIS-PPQ) is involved in the Spongy Moth Program:

- To detect isolated infestations at low population levels
- To eradicate isolated infestations on State and private lands
- To prevent the artificial spread of spongy moth to noninfested areas

The Spongy Moth Program Manual is a source of information on spongy moth and a reference for the methods and procedures for survey, regulatory, outreach, and control activities.

NOTICE

Refer to Glossary for definitions of terms such as artificial spread, and for abbreviations such as APHIS or PPQ.

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Damage Caused by the Spongy Moth

Spongy moth is one of the most destructive pests of shade, fruit, and ornamental trees as well as hardwood forests. In the period of 1980 to 1989, spongy moth defoliated close to one million or more forested acres each year.

Besides being a pest of trees, spongy moth larvae are a nuisance to people.

- Spongy moth larvae excrete digested leaf material while feeding in the tree canopy. For this reason, people will avoid using wooded parks and yards during the larval season
- Dead larvae produce foul odors
- Spongy moth nuisances hinder people's ability to enjoy the outdoors
- When spongy moth populations are dense, larvae become hyperactive during the day. Heavily infested areas teem with larvae on trees, telephone poles, vehicles, fences, houses, clotheslines, and above-ground swimming pools. People avoid going outdoors for fear of stepping on caterpillars crawling on sidewalks and in play areas.

Background on Spongy Moth

Accidentally introduced into the United States in 1869 in Medford, Massachusetts, the pest spread rapidly throughout New England. Between 1869 and 1890, spongy moth quickly developed into a serious problem in Massachusetts. Spongy moth damage was one of the key reasons Congress passed the Plant Quarantine Act of 1912.

Despite early eradication efforts, spongy moth is now widely established. Maps of the generally infested area and a list of areas under quarantine are available on the APHIS Spongy Moth website.

Research development and implementing survey, regulatory, and control programs have made spongy moth one of the most studied insects in the pest management field.

Cooperation in the Spongy Moth Program

Since the end of the last century, Federal, State, Tribal, and local government agencies have worked cooperatively to control spongy moth populations (by containment, suppression, or eradication, alone or in combination). Cooperative programs will continue to be the focus of the U.S. Department of Agriculture (USDA).

Spongy Moth Dispersal

With the current mobility of the U.S. population, the sprawling suburbanization of once-forested areas, and the insidious nature of the pest, the job of preventing establishment of isolated infestations by artificial spread is a difficult one. Household moves, especially the movement of outdoor articles such as lawnmowers and grills, are an important pathway for the long-distance movement of spongy moth. To contain spongy moth, an effective program will require: 1) public education on the problem; 2) public support in preventing spongy moth movement; and 3) early detection and eradication of isolated infestations.

Potential Damage from the Spongy Moth

All temperate hardwood growing areas in North America are potentially at risk from attack by spongy moth. Despite all attempts to prevent its movement, spongy moth continues to increase its range along the leading edge of the quarantine area.

Preventive Safety Measures

Safety measures involving personnel, the public, and equipment are the responsibility of all persons working on the Spongy Moth Program. Supervisors **must** advise employees of safety and health regulations and notify employees of known hazardous conditions. Employees **must** comply with **all** safety and health regulations. When necessary, wear protective equipment and report hazardous situations to your supervisor. Contact your supervisor immediately when an accident or personal injury has occurred.

Safety Reminders When Trapping

- Avoid contact with poisonous plants
- Beware of aggressive animals (e.g., dogs, bulls, etc.) near the trap site
- Carry plenty of drinking water
- **Do not** place traps in locations where you feel there is a dangerous or threatening situation
- In areas with poisonous snakes, wear snake leggings and carry a snake bite kit
- Prevent slips, trips, and falls by being aware of your surroundings and footing
- Respect all property
- Use preventive measures to avoid tick- and insect-borne diseases
- Wear a high-visibility vest
- Wear safety glasses when working or walking in wooded areas
- Wear nitrile gloves when handling lures

Vehicle Safety Reminders

- Always use seat belts
- Carry sufficient repair tools (jack and lug wrench) and safety equipment (flares and first aid kit)

- Carry wooden blocks to block the tires when parking on a steep slope
- Check the condition of the vehicle before starting daily activities
- Check to see if passage is clear before backing up the vehicle
- Drive slowly when roads are unfamiliar, winding, narrow, or unpaved
- Follow **all** relevant policies regarding using cell phones and other devices while driving
- Keep the vehicle free of debris and unsecured items
- Obey all traffic laws
- Obey the posted speed limits. DO NOT SPEED
- Park the vehicle facing the exit route in case you need to exit the area quickly
- Select a safe parking place while servicing traps or when leaving the vehicle
- Tell your supervisor immediately whenever you are involved in an accident

Users

This manual serves both as a field manual for employees performing program activities and a reference for program managers and staff officers. Primary users of this manual are Plant Protection and Quarantine (PPQ) officers, staff officers, and State and Federal cooperators involved in carrying out the Spongy Moth Program on a day-to-day basis.

Secondary users of the manual are Federal, State, county, and local regulatory officials, private industry, and part-time employees temporarily assigned to program activities.

Related Documents[1]

- Gypsy Moth Management in the United States, a cooperative approach - Final Environmental Impact Statement—1995)
- Gypsy Moth Management in the United States, a cooperative approach - Final Supplemental Environmental Impact Statement - 2012)
- Code of Federal Regulations (7 CFR 301.45)
- Your Move Spongy Moth Free (Program Aid 2147)
- Environmental Assessments
- Gypsy Moth Proposal: Redirection of the Gypsy Moth Program and Attachment A—National Survey Plan for Gypsy Moth
- Insecticide Labels and Labeling
- National memorandums of understanding (MOUs)
- Safety Data Sheets (SDS)
- State laws allowing access to private property
- State memorandums of understanding (MOUs)

[1] “Gypsy moth” was the name of the pest at the time these documents were published. The pest is now known as “spongy moth.”

- USDA Departmental Regulation No, 4400-1, Departmental Occupational Safety and Health Management, dated January 6, 1983

NOTICE

Under Animal and Plant Health Inspection Service (APHIS) policy, **only** certified pest control operators may use or supervise applications of insecticides used in regulatory and control activities.

- USDA Departmental Regulation No. 4400-2, Hazard Communication Programs, dated October 14, 1986
- USDA Departmental Regulation No. 5023-1, Chemical Hazard Communication, dated October 10, 1986
- USDA Hazard Communication, A Guide for Federal Agencies, August 1987
- Wildlife and Fisheries Regulations (Endangered Species Act)

Advisories

Advisories are used throughout the *Spongy Moth Program Manual* to bring important information to your attention. Please carefully review each advisory. The definitions coincide with American National Standards Institute (ANSI) [2] and are in the format shown below.

⚠ CAUTION

CAUTION is used to indicate tasks involving minor-to-moderate risk of injury.

⚠ DANGER

DANGER is used to indicate the event of imminent risk of death or serious injury.

NOTICE

NOTICE is used to alert a reader of important information or Agency policy.

SAFETY

SAFETY is used for general instructions or reminders related to safety.

⚠ WARNING

WARNING is used to indicate the event of possible risk of serious injury.

[2] TCIF Guideline, Admonishments (Safety-Related Warning Message), TCIF-99-021 Issue 1, p.4.

Spongy Moth Program Manual Contacts

Information Services and Manuals Unit (ISMU)

The PPQ Information Services and Manuals Unit (ISMU) issues and maintains manuals electronically on the Plant Health Domestic Program and Emergency Response Manuals webpage.

If you are unable to access the Spongy Moth Manual online or have a suggested edit (layout, spelling, etc.) please contact ISMU by email at PPQ.IRM.ISMU.Manuals.Feedback@usda.gov.

Revisions to the manual are announced via the APHIS Stakeholder Registry to anyone, government employees and external stakeholders, who have subscribed to receive Spongy Moth Manual updates. To subscribe, navigate to APHIS Stakeholder Registry, enter your email address, and select the relevant manuals under Plant Health Information – Manual Updates.

Spongy Moth Manual Liaison

If you have an urgent situation requiring an immediate response regarding the Spongy Moth Manual contact the Spongy Moth Manual Liaison, Kathryn Bronsky, by email at kathryn.e.bronsky@usda.gov.

Chapter 2

Survey

Contents

Introduction

Spongy moth surveys are conducted by APHIS to:

- Detect outlying introductions of the pest to new areas
- Delimit outlying detections to determine control treatment needs; and
- Support regulatory decision making and actions

The Spongy Moth Program relies on effective survey tools, strategies, and methods to provide critical information that guides all other aspects of program delivery. The annual national detection survey is necessary to find outlying introductions of the pest in uninfested areas in a timely manner to ensure the introductions do **not** result in large, established breeding populations that would be difficult and costly to eradicate. Delimiting surveys are used to define the outer boundaries of an infestation or to ensure small, outlying populations go extinct on their own due to natural factors (e.g., predation and inability to find mating partners). Egg mass and other types of surveys are useful in determining population levels and infestation densities.

Because the information gathered through survey work underpins the rest of the Spongy Moth Program's efforts, it is important to conduct surveys properly. Properly run surveys provide quality information to the program, and conversely, poorly run surveys yield lower quality, less useful information compromising overall program effectiveness. This chapter provides guidance on how to properly plan and conduct a spongy moth survey.

Materials for Spongy Moth Surveys

- Colored pencils or pens for mapping moth finds
- Delta traps
- First aid kit
- Grease pencil for writing on trap or preprinted labels
- Grid overlay, calipers, or ruler
- High-visibility vest
- Maps (County, city, plat, etc.)
- Mobile data device and Global Positioning System (GPS) unit
- Nitrile gloves
- Pliers to remove staples from trees
- PPQ Form 343 (Trapping Record) or local form
- PPQ Form 391, Specimens for Determination
- Safety glasses if hiking in wooded areas
- Small backpack
- Spongy moth door hanger for landowner notice
- Spongy moth lures (sex attractant for traps)
- Snake leggings
- Standard stapler, standard staples for assembling traps
- Staples (9/16", heavy duty), heavy duty staple gun, string, zip ties—where owners will not allow staples (for hanging traps)

- Surveyor’s flagging ribbon (marking tape), crayon, or marker for marking trap locations
- Tick and insect repellent; sunscreen
- Trap record sheets

Planning the Survey

The National Spongy Moth Survey is a resource-efficient survey designed to detect infestations before expansive land areas must be treated.

Step 1: Determine the type of survey to be conducted (e.g., detection or delimiting)

If you are planning a detection survey, refer to Detection Survey for categorizing sites. If you are planning a delimiting survey, determine the trapping density following the guidelines on Delimiting Survey.

Step 2: Determine Trapping Requirements

When determining trapping requirements, consider the frequency for trapping an area and the last time the area was trapped. If an area must be trapped every 2 years and the area was trapped last year, do not trap the area in the current year. Consider available funding and other resources when planning and conducting surveys.

Step 3: Determine Survey Needs (Personnel and Supplies)

Step 3a: Formula for Determining Trap Needs

The number of square miles in a category multiplied by the number of traps per square mile (trap density). Divide the total by the trapping frequency (in years) to get the number of traps required per year.

(no. of sq. mi. x trap density)/trapping frequency in years = total number of traps required

EXAMPLE

Determine trap needs for Category 1, which is 250 sq. mi. in total area and trapped every 2 years.

(250 square miles x 1)/2 years = 250/2 = 125 traps

For a Category 1 area, which is 250 sq. mi. and trapped every two years, 125 traps are needed.

Step 3b: Formula for Determining Personnel Needs

Divide the trap total by the number of traps a trap tender can service under the conditions experienced in a specific State. For detection surveys, a national average is 400 traps per trap tender. In areas with difficult terrain, the average falls to 250 traps per trap tender. For delimiting surveys, the average is 750 traps per trap tender; for transition zone surveys, the average is 600 traps per trap tender.

total traps/no. of traps tender can service = total trap tenders required

EXAMPLE Determine how many trap tenders to hire for the season when conducting a detection survey that requires 1,200 traps.

1,200 traps/400 = 3 trap tenders

Step 4: Prepare a Trapping Budget

After determining the needed traps and trap tenders, prepare a trapping budget.

Budget for the following expenses (adjust for inflation):

- Travel costs for trap tenders
- Trap tenders' hours
- Trap and lure costs
- Other materials (staples, staplers, maps)

Conduct the Survey

Step 1: Establish Trapping Grid for Survey

Establish the trapping grid well in advance of the survey season (late winter/ early spring) to allow adequate time for review and consultation prior to trap placement.

Using geographic information systems (GIS) to establish the base grid density is very useful, though not required. In addition, GIS systems can adjust the scale of the map to allow for greater resolution when placing traps in higher densities. Using an established grid ensures appropriate trap distribution throughout the established survey area.

Capture GPS coordinates as traps are set; some find it useful to physically plot the trap locations on a map as a backup measure. To aid in monitoring and retrieving, number traps consecutively within a county as they are set.

Alternatively, you may use preprinted bar codes to identify a specific or individual trap.

NOTICE

Never prenumber traps and set them randomly from a box or bag!

Table 2-1 indicates distances for various trap densities.

Table 2-1 Distances for Various Trap Densities

Traps per Square Mile	Distance Between Traps (ft)	Distance Between Traps (m)
00.25	10,560	3,219
01.00	5,280	1,609
16.00	1,320	402
25.00	1,056	322

Traps per Square Mile	Distance Between Traps (ft)	Distance Between Traps (m)
36.00	880	268

Figure 2-1 indicates traps plotted for a detection survey.

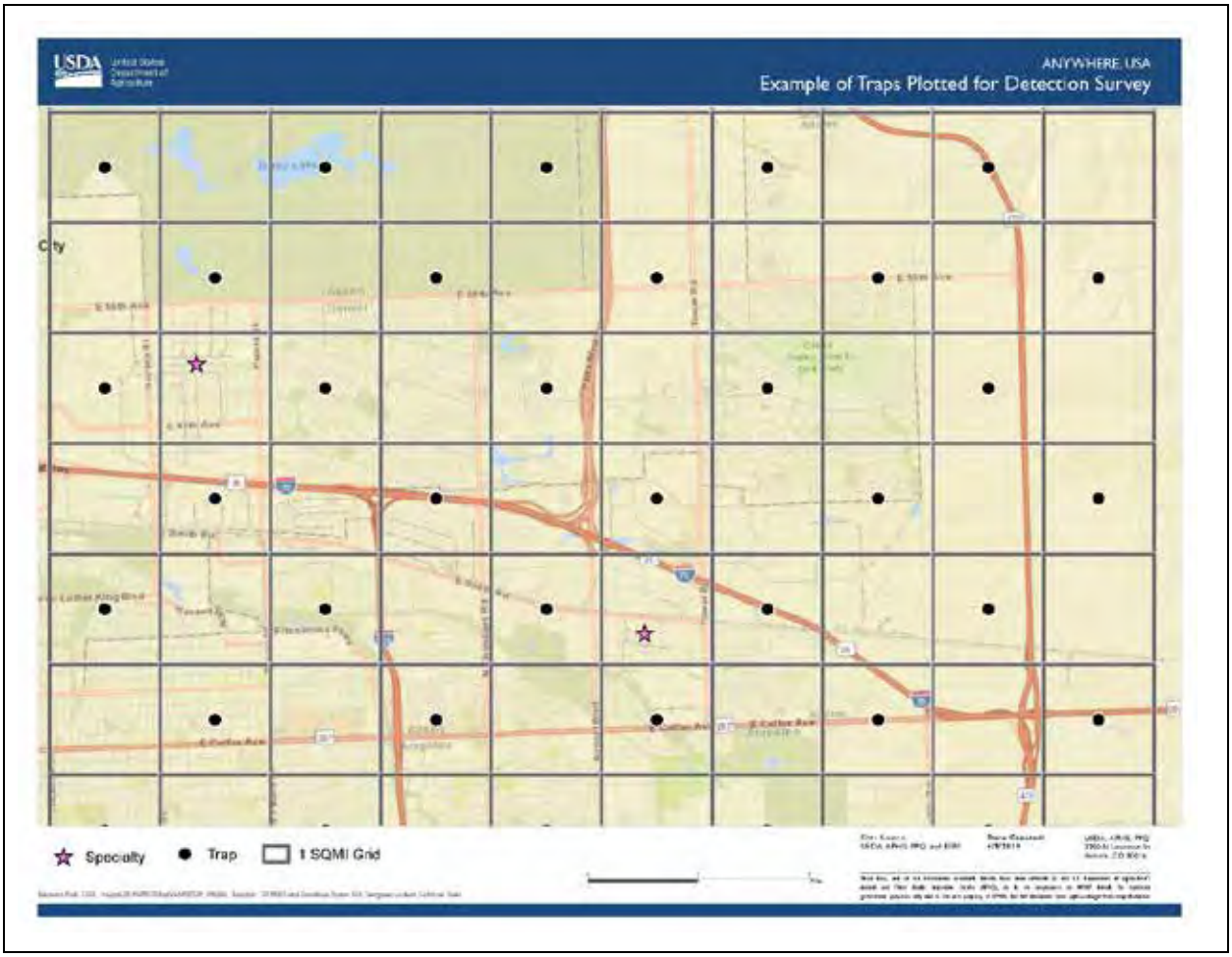


Figure 2-1 Example of Traps Plotted for Detection Survey

Step 2: Select Sites for Placing Traps

Using the map with the trapping cells identified, set individual traps as close to the center of designated cell. While not essential, place traps on preferred hosts when available. Host trees are grouped according to spongy moth preference.

Hosts Preferred by All Larval Instars

- Apple
- Aspen
- Basswood
- Birch (**except** yellow and black)
- Boxelder
- Larch

- Mountain ash
- Oaks (**all** types)
- Speckled alder
- Sweetgum
- Willow

Step 3: Set Traps and Mark Location

Step 3a: Setting Traps

The timing for setting traps is critical. Phenology models may be available to assist with determining the proper timing for trap placement.

NOTICE

Directions for assembling traps are available in How to Assemble Traps. The spongy moth lures will remain active for at most 3 years from the date of manufacture (typically identified on each package) and if stored in the freezer.

The grid locations are already marked on a map. Use discretion in selecting the exact location of the traps. Once traps are placed, record the location GPS coordinates within the grid. If a suitable trap location cannot be found within the grid, document the reason why.

General Rules for Setting Traps

1. Obtain property owners' permission before placing a trap. If **not** possible, leave a door hanger or other program information with the trap.
2. Male moths usually frequent woodlands rather than open areas with no trees or shrubs.
3. If available, woodland edges are good sites for trap placement. If there is a choice, place the trap on the windward side so the wind currents will carry the scent pheromone) into the woods.
4. If there are no woodlands or residential areas within a reasonable distance (500 to 1,000 feet) from the plotted map location, the best location for a trap is at the end of a hedge row or tree leading to a wooded area.
5. Place traps four to five feet high (or eye level if **less than** five feet) on tree trunks. In areas frequented by small children and animals such as cattle and bears, place the trap out of their sight and reach. Because of vandalism, trap placement is especially important when trapping Category S areas (such as recreational parks, campgrounds, and tourist attractions).
6. If possible, place traps in shady areas. Do not set the trap where foliage or branches will block the trap openings.
7. Complete trap record including a sketch showing specific trap location.
8. Avoid setting traps on or in the following situations.
    A. Close to gravel roads (place trap at least 50 feet away from well-traveled roads)
    B. Properties for sale
    C. Parks or open areas where people can easily see the traps
    D. Properties with aggressive dogs

E. Private property without the owner's permission
F. School properties or along passageways where students walk
G. Sites where GPS coordinates cannot be obtained
H. Sites where farm animals may damage or destroy traps
I. Sites where road construction is scheduled or in progress
J. Sites within locked gates
K. Sites obscured by tree branches
L. Trees with poison ivy vines
M. Trees marked for cutting or removal

The distance between traps depends on the selected trap density and the availability of favored host trees. When possible, place the traps in a uniform array on choice hosts or in a preferred habitat.

Delta traps (Figure 2-2) are most effective when attached directly to the trunk of a host tree. The preferred way to attach a trap to the tree is to tie a string around the tree and hang the clip on the string or staple the trap to the tree. Hang the traps at chest height unless vandalism or animal damage is a problem, in which case they should be hung higher.

Milk carton traps (Figure 2-3) are used in Slow the Spread (STS) and other surveys to monitor spongy moth population levels when the pest is known to be present in the area.

Figure 2-2 Delta Trap

Figure 2-3 Milk Carton Trap

Step 3b: Marking Trap Locations

Mark trap locations to expedite trap tending as well as supervisory and quality control activities. Use plastic flagging ribbon or marking crayon. To mark a trap location, tie a piece of flagging ribbon to a telephone pole, tree trunk, or other suitable object at the roadside. The ribbon should be visible from the road when approached from either side. Mark trap location **only** when necessary.

Brightly colored plastic tape (fluorescent orange) has proven to be the best flagging ribbon. The marking crayon **must** be sufficiently soft to mark wet trees. Place a small piece of flagging ribbon near the trap.

In urban areas where streets are named and houses are numbered, use the house address and GPS coordinates for locating traps. Do **not** mark trap locations with ribbons or marking crayons in urban areas. Also, use restraint in marking roadside rest areas, picnic areas, tourist attractions, and other high-use areas where the ribbon will detract from the site's appearance.

Step 4: Check the Traps

For detection surveys, check each trap **at least** once during the middle of the trapping season. For delimiting surveys, check traps more frequently, preferably every 10 to 14 days. Under ideal conditions, trap checking will start when the male moths start flying. Where vandalism is likely,

check the traps more often. Phenology models can be useful for determining the proper timing for initial trap checks.

Plan your trap-checking route before leaving the office. Select a route that will eliminate overlapping travel.

When checking traps, bring a supply of replacement traps and lures to replace all vandalized and missing traps. When replacing a trap, number the replacement trap with the same number as the original trap with an additional indicator (such as the letter "R," e.g., 416-R) highlighting that it is a replacement trap.

When checking traps:

1. Check overall trap condition and replace badly damaged traps.
2. When trap contains a suspect moth, remove the trap **without** disturbing the specimen. Note on the trap record sheet the date and exact location of recovery and inform your supervisor.
3. Record the trap inspection by noting the date on the trap and PPQ Form 343 (Trapping Record) or local trap record sheet.
4. Write the following information on the trap: trap number, county, trapper's initials, date trap set, and each date the trap is checked.

Check the trap by looking in both ends. There is no need to remove it from the tree. Look into the trap to see if there are any male moths. If a suspect male is present, remove and replace the trap.

Step 5: Submit Spongy Moth Suspects

Submit the trap with the suspect moth to your supervisor to submit to the PPQ Forest Pest Methods Laboratory (FPML) (formerly known as the Otis Laboratory) for confirmation and further identification. Alternatively, your supervisor may direct you to submit the specimen directly to the FPML. Refer to Appendix C for specimen submission guidelines.

Record on the bottom of the trap the date, time, results, GPS coordinates, and any pertinent observation or action taken.

Record the date and all circumstances about the catch of suspect moths on the trap record sheet or in the USDA-approved database. Accurate information is essential to the trapping program.

Complete the form each time you check the trap and find spongy moth. The data you report is as important as the trap placement.

Step 6: Remove Traps

At the end of the trapping season remove **all** traps and examine each for spongy moth. Carefully look for missing traps. If a trap number cannot be read, rewrite the number on the bottom of the trap.

When removing the trap, remove all other materials (string, lures, staples, wire). Also, remove all flagging tape. Give all removed traps to the person in charge of the survey. For each trap containing a suspect moth, provide the following information: location (State, county, town, and GPS coordinates); trap number; trap tender's name or identification number; date; and host tree

name. Open traps on final check because moths can be missed when just looking through the trap ends. Flatten empty, used traps and dispose by incinerating or burying at a sanitary landfill. Destroy the lures with the traps.

Step 7: Report Survey Results

Refer to Spongy Moth Data Collection for instructions on reporting survey data into the USDA-approved database as soon as possible and on a regular basis as detailed in your cooperative agreement or **no later than** December 31st, whichever is earlier.

Step 8: Interpret Survey Results

If you found spongy moth during your survey, use the guidance on interpreting survey results in the specific sections below.

Survey Records and Maps

To document the survey, accurate and complete survey records and maps must be maintained.

Records

Maintain a record of **all** trap locations including any descriptive information needed to help locate traps (trap site map or PPQ Form 353). Include information such as date set, date inspected, and date removed, as well as trap catches. Record this information on a trap record sheet or mobile device and promptly enter the information into the USDA-approved database.

Keep a separate record of any egg mass surveys.

Use local guidelines for proper record maintenance. In developing local guidelines for survey records, determine what information is needed and the most efficient manner for recording each item.

Record **all** trap locations and positive trap findings; verify trap locations on the map. Traps for which no moth catches are reported are assumed to be negative for the season.

Record trapping data throughout the season, as frequently as possible, into the

USDA-approved database. Refer to Spongy Moth Data Collection for instructions on reporting into the database.

Maps

For surveys, digital GIS maps or county or city maps are satisfactory.

Consecutively number every trap location within each county. The type, number, and trap distribution will vary according to local needs.

Prepare trap maps **before** the trapping season (the preferred method) using a grid system to assure proper trap distribution. Use GIS software, a grid, calipers, a ruler, or an overlay to plot trap locations. When you use the grid system of plotting trap locations before field placement, adjust trap locations in the field. Capture GPS coordinates and/or make corrections on **all** maps to show the actual trap locations.

Please ensure the map contains a legend detailing the program starting date, completion date, name of trapper, and any other pertinent information.

When using maps for postseason decision making, indicate both negative and positive trap catches on the map. The negative traps are important when determining the pattern of trap catches and establishing treatment boundaries.

Revising Quarantine Maps

Determine quarantine revisions in consultation with national program management. National program management will follow established protocols for quarantine expansion activities by issuing Federal Orders, changing web listing(s), revising maps, and/or publishing interim or proposed rules in the *Federal Register*.

Detection Survey

Purpose

The purpose of a detection survey is to determine by trapping:

- Where isolated infestations of spongy moth occur
- Where further delimiting surveys are required

Detection surveys are designed to find isolated infestations of spongy moth as soon as possible after introduction; small spongy moth infestations are less expensive and easier to eradicate than large infestations.

Due to differences in habitat, host availability, and patterns of movement of regulated articles (refer to Regulated Articles) from infested areas, not all areas within a State have the same potential for becoming infested. The risk of potential introduction and establishment will determine the areas in which a detection survey is needed. High-risk areas should include areas receiving regulated articles and containing preferred host trees. Before conducting the detection survey, categorize areas within the State by infestation risk. The Spongy Moth Risk Model can help with identification of high-risk areas. Refer to Detection Survey Protocol.

The time at which a detection survey starts and ends will depend upon the climatic conditions in the area. At the least, the trapping period should cover the entire projected spongy moth flight period in the area. Phenology models may be available to assist in determining flight periods. Please contact your State Plant Health Director (SPHD) for model availability. In practice, because spongy moth string lures last several months in the field, detection trapping can be scheduled by the calendar in any given area, if appropriate buffers are included to account for variations in weather from year to year. However, whenever captured moths will be analyzed genetically, traps should be checked as quickly as possible after the end of the local flight season. This minimizes in-trap moth degradation and helps ensure successful analyses.

Detection Survey Protocol

Step 1: Categorize areas within a State (per the national survey plan)

Determine the total number of square miles in each category per county. The categories will determine the density and frequency of trapping in a particular area. Alternatively, each State may use the Spongy Moth Risk Model, an improved option for accomplishing this task. Not only does it provide detailed demographic and host information, but it also allows GIS specialists to add local risk data layers for a customized survey plan. Examples of such data include locations of railroads, campground data, postal address forwarding data, etc. Contact your GIS specialist for more guidance on using this model.

Using the Spongy Moth Risk Model can aid in establishing the appropriate grid density (1/mi2; 1/2mi2; etc.) based on the category of the survey area. Plan to trap for spongy moth in **all** categories **except** Category 4.

Category S (Special Site)—sites where infestations are most likely to be artificially introduced. These are sites with a history of receiving regulated articles from quarantine areas or transition counties (those **not yet** quarantined, but along the population front) and are also exposed to movement of infested vehicles (e.g., travel trailers, semi-trucks) from quarantine areas. These sites should be the highest priority for States to survey.

1. Category S regulatory sites—sites knowingly receiving regulated articles from spongy moth quarantine areas either under Certificate, Accurate Statement, or Limited Permit. Category S regulatory sites include:

    A. Firewood dealers and distributors
    B. Nurseries
    C. Sawmills, pulp mills, and veneer mills

    Category S regulatory sites need a **minimum** of two random set traps placed on the site. Additional traps may be necessary depending on the size of the facility, but **no more than** 12 traps. When possible, place traps in all four cardinal directions on the property (N, S, W, E).

    Mills under compliance agreements (CAs) to receive regulated materials from quarantine areas **must** have two to four random set traps placed on the perimeter of the facility within property ownership (if possible) each year. These traps are necessary to monitor compliance and potential new introductions to the surrounding area.

    For mills under a CA in areas where spongy moth populations are **not** known to exist and where a standard detection grid is **not** present, place an additional four to ten traps in the area surrounding the mill. These additional traps should **not** be closer than two kilometers (1.25 miles) to the mill, or further than ten kilometers (6.25 miles) from the mill.

2. Category S high-risk sites–sites likely exposed to movement of infested vehicles and outdoor household articles (OHA) from quarantine areas.
    Category S-High Risk Sites include:

A. Campgrounds
B. Commercial areas with interstate shipment
C. Rail transfer station
D. Recreational vehicle (RV) and travel trailer parks
E. State and Federal Parks
F. Tourist attractions

3. For Category S, the trapping density and frequency are:

   A. Trapping density: for nonregulatory sites, random set (**no more than** one trap per site or per square mile); for regulatory sites, randomly set 2-12 traps as described above.
   B. Trapping frequency: annually if for regulatory purposes, or every two years as part of the National Spongy Moth Survey.

Category 1—areas with high potential for introducing spongy moth (people and/or regulated articles moving from infested areas into noninfested areas); the area must have a suitable habitat (host trees) to support a spongy moth population.

- Affluent residential areas
- Cities with military bases or major universities
- Residential areas with elevated relocations
- U.S. Census population growth areas
- High tourist areas such as National and State parks
- Wooded, suburban residential areas
- Nursery, mill, or firewood dealers receiving regulated materials from or near quarantine areas.

EXAMPLE Counties surrounding large metropolitan areas such as Chicago, San Francisco, Louisville, Atlanta, Raleigh, and Portland.

For Category 1, trapping density and frequency are:

- Trapping density: one trap per square mile
- Trapping frequency: every two years

Category 2—areas with moderate potential for introducing spongy moth; the area has a suitable habitat (host trees) to support a spongy moth infestation.

- Areas with moderate populations, such as small cities
- Contiguous wooded areas accessible to people
- Large, urban areas with limited habitat

EXAMPLE Blue Ridge areas of Virginia, West Virginia, Tennessee, North Carolina, and Georgia. Ozark areas of Missouri and Arkansas

For Category 2, trapping density and frequency are:

- Trapping density: one trap every four square miles (0.25 traps per sq. mi.)
- Trapping frequency: every two years

Category 3—areas with a low potential for introducing spongy moth, but a suitable habitat to support an infestation.

- Noncontiguous wooded areas
- Rural agricultural areas with widely scattered small towns

EXAMPLE The corn belt areas of Iowa, Illinois, Indiana, and Ohio.

For Category 3, trapping density and frequency are:

- Trapping density: one trap every four square miles (0.25 traps per sq. mi.)
- Trapping frequency: every four years

Category 4—areas with a lack of habitat or potential for introducing spongy moth.

EXAMPLE Great Plains grassland/wheat areas, semiarid high desert areas, and dry desert areas.

For Category 4, trapping density and frequency are as follows:

- Trapping density: none of these areas should be trapped
- Trapping frequency: NA

Step 2: Conduct Survey

Use guidelines in Conduct the Survey.

Step 3: Interpret Survey Results

If you found spongy moth during your survey, the decision to delimit in the following year will be made in consultation with national program management based on the following factors:

- Available resources
- Host vegetation
- Number trapped in current year
- Number trapped in previous year
- Potential for artificial dispersal

Delimiting Survey

Purpose

The delimiting survey determines:

- Presence or absence of an infestation
- Approximate size of an infestation, if present.

When a single trap (or several loosely associated traps) catches an isolated[1] or multiple moths, conduct a delimiting survey. The delimiting survey is usually performed in the following year, but if caught early enough in the current trapping season, some delimiting traps may be placed that same season to try to define the size of the infestation.

Important Features

- The standard delimiting survey trap array is 16 traps per square mile. Special circumstances, such as the presence of sensitive areas or habitats containing endangered species, may require a trap array of 26 to 36 traps per square mile. The delimiting array should cover **at least** 4 square miles around the positive site or extend out to the next negative trap.
- The positive trap(s) will be at the center of the trap array. The survey results from the detection survey supplies information for positioning the trap array.
- When conducted **after** an eradication effort, a delimiting survey is called a post-treatment survey.

Delimiting Survey Protocol

Step 1: Conduct the Survey

Refer to guidelines in Conduct the Survey.

Examine the map from the previous year's detection survey showing all positive traps. When plotting trap locations on a new map, consider the scale of the map and the required trapping density (i.e., 16 to 36 traps per square mile). Center the grid on the suspect infestation. Generally, four square miles of delimitation will be sufficient or a ½- to 1-mile boundary (dependent on the trapping category in the area of detection). If the suspect area is spread out, it is necessary to trap a larger area.

Plot trap locations well in advance of the survey season (late winter/early spring). Plotting the traps on planned grids allows for results' comparison from location to location. **Do not** arbitrarily place traps.

When moths are captured during a detection survey, a delimiting survey may be conducted the following year in the vicinity of the trap catches. In delimiting surveys, traps are typically deployed at densities of 16 to 36 traps per square mile over areas of one to four square miles. Larger areas may be delimited as indicated by results of the detection survey. The pattern of trap catches can be used to estimate the approximate area of infestation.

Uniform grid spacing provides consistent information, which will help pinpoint infestations. If feasible, use appropriate mapping software to create delimitation grids at the desired density with trap numbers plotted on the map at the grid points. If it is necessary to plot a map by hand, use a large-scale map such as topographic map or a county or city map with even spacing. Some

[1] Triggers for a delimiting survey may depend on proximity to the leading edge of the spongy moth-infested area, i.e., a single moth catch well removed from the leading edge may trigger an egg mass survey followed by a delimiting survey and/or treatment the following year, while a single moth find nearer to the leading edge may not trigger a delimiting survey.

counties have roads laid out on a square grid with road intersections reliably at regular grid spacing. Even spacing is important to prevent data gaps and maintain information consistency for evaluation.

The scale on a topographic or similar large-scale map is appropriate for the delimiting survey.

Figure 2-4 shows traps plotted for a delimiting survey.

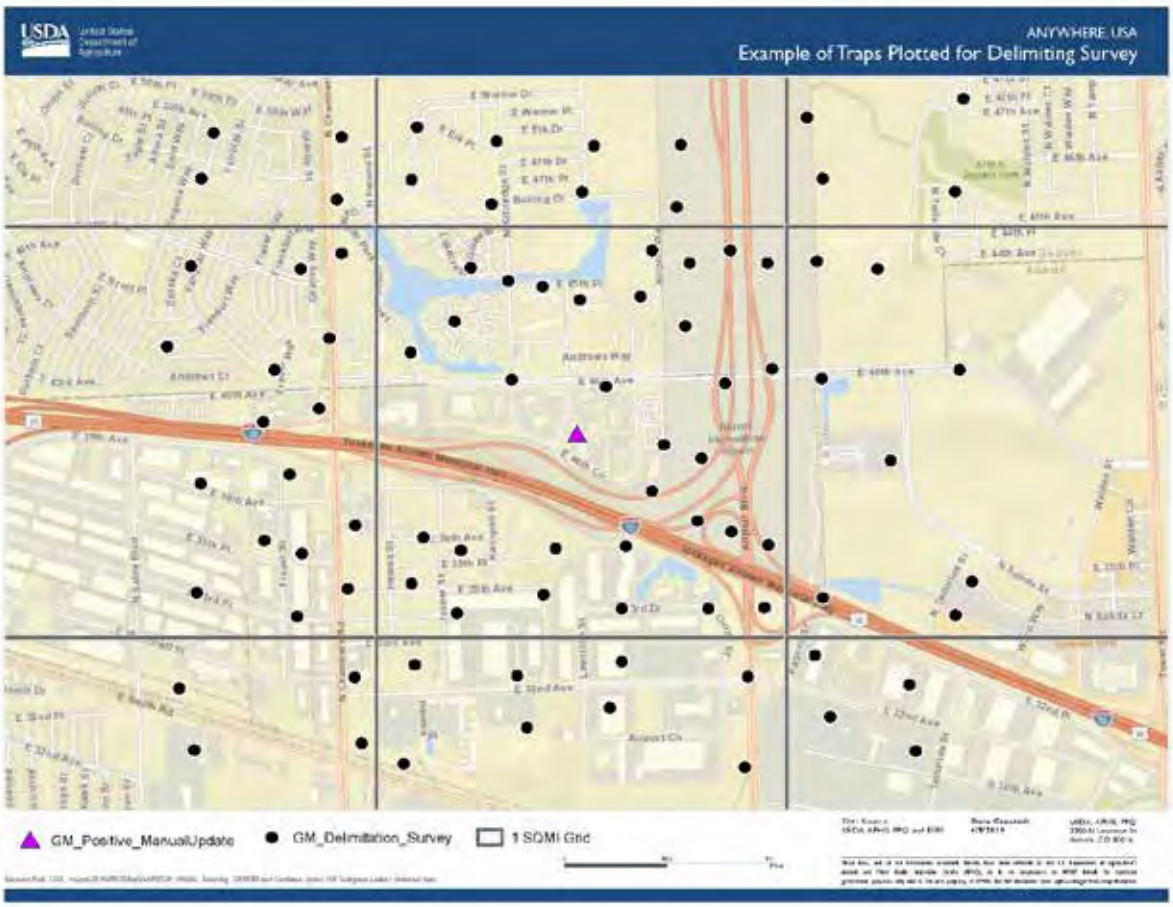


Figure 2-4 Example of Traps Plotted for Delimiting Survey

Step 2: Select Sites for Placing Traps

Using the map with the trapping sites plotted, select individual trap sites as close to the plot locations as possible. If you **cannot** hang a trap on a host tree, use another vertical surface, such as a telephone pole, to hang the trap, preferably within 100 meters of a host. **Never** hang a trap on branch tips.

Step 3: Interpret Survey Results

If the traps do **not** capture spongy moth during the delimiting survey, assume there is no detectable infestation in the delimited area. If the traps have positive finds, decisions about appropriate follow-up actions will be made in consultation with national program management.

Other Survey Tools

Introduction

The following survey methods **do not** use pheromone traps.

- Egg mass surveys
- Larval detection surveys

Egg mass surveys and larval detection surveys are often done to supplement an adult trapping survey and confirm reproducing populations are present.

Egg Mass (and Other Life Stage) Surveys

Purpose

- To confirm an infestation by providing convincing evidence (egg masses) that reproduction has occurred
- To determine the population level in a specific area so the status may be changed (e.g., noninfested to transition area; transition area to generally infested regulated area)
- To determine the population level near a high-risk site so the correct control and/or regulatory actions can be applied

When to Conduct an Egg Mass Survey

The best time is after leaf drop; however, egg mass surveys can be done any time after the females have finished depositing eggs. Phenology models may be available to assist with survey timing. A preliminary survey may help to determine if the females are present and laying eggs; the buff egg masses and the white female moths are easy to see on tree trunks and branches.

Where to Conduct an Egg Mass Survey

Egg mass surveys, which involve counting egg masses, are useful in areas with moderate or high infestation levels.

Egg mass surveys are particularly desirable when:

- Egg masses are the **only** life stage present
- Survey results are needed immediately, as for treatment decisions
- Populations are high enough to make the effort worthwhile.

Usually, egg mass surveys will not detect low-level populations with reliability; therefore, egg mass surveys are of limited value in areas with low level populations (larval trapping is a better survey method in areas with light infestation levels).

Egg mass surveys in the following areas are most likely to detect infestations:

- Areas adjacent to and downwind from known infested areas
- Areas close to known infested areas, particularly those areas where traps catch numerous moths
- Areas such as Federal and State parks, used by RVs

- Areas where suspect possible introductions have been reported because of observed defoliation, sightings of females, or some other indicator
- Areas where establishments receive regulated articles
- Areas where numerous household moves originating in the quarantine area occur
- Areas with preferred hosts

Characteristics of Egg Masses and Preferred Egg-Laying Sites

A well-established infestation may exist even though few, if any, egg masses are easily seen. Therefore, surveyors **must** know the characteristics of the egg masses and the preferred egg-laying sites.

Preferred egg-laying sites are in the following locations:

- In bark cavities, under loose bark, and in bark crevices
- On branches on the ground or on the underside of any type of ground litter, such as tin cans
- On logs—including firewood
- On outdoor household articles (OHAs), such as birdhouses and picnic tables
- On signs
- On stone walls and in the crevices of stone walls
- On the underside of rocks **not** tight to the ground
- On tree trunks in sheltered spots, such as under limbs
- Under the siding and eaves of buildings

In fact, egg masses may be found anywhere near trees in areas with preferred hosts.

Larval skins and pupal cases may be found even when egg masses are not.

Basic Procedures for Egg Mass Surveys

- Egg Mass Surveys Using Targeted Visual Surveys (Transects)
- Egg Mass Surveys Using Small Plots
- Egg Mass Surveys Using General Observation Technique

Egg Mass Surveys Using Targeted Visual Surveys (Transects)

Egg mass surveys for regulatory purposes are usually targeted visual surveys.

Targeted visual surveys (transects) examine an area of 50 feet by 20 feet, 10 feet on either side of a 50-foot centerline. The total area examined is 1,000 ft^2, roughly equivalent to the 1,089 ft^2 in the 1/40 of an acre plots in the next technique.

Before the egg mass survey:

1. Know how to identify and locate the egg masses.
2. Select the sites where spongy moth egg masses are most likely to be (use the criteria on the previous page).
3. Inform others of your intended survey area.

Procedure for the targeted visual survey—at each survey site:

1. Select an object, such as a tree or rock, 50 feet away.
2. Walk slowly toward the selected object, scanning 10 feet to each side, in front, and overhead. Examine **all** preferred egg-laying sites.
3. Count **all** observed egg masses.
4. Record **all** critical information (e.g., number of egg masses, site, method, and date of survey).

Egg Mass Surveys Using Small Plots

Before the egg mass survey:

1. Know how to identify and locate the egg masses.
2. Select the sites where spongy moth egg masses are most likely to be (refer to the criteria from Where to Conduct an Egg Mass Survey). Plots **must** be **at least** 300 feet apart. If circular, the plots will have a radius of 18.6 feet; therefore, they will be 1/40 of an acre (1,089 ft2).
3. Prepare a stake that will be driven into the center of the circular plot; this stake will have a radius-marking line of 18.6 feet attached. With its attached line stretched, this stake will help locate points within, on, and outside the circumference of each plot. (If four additional stakes are placed, equidistant, on the circumference, these stakes along with the center stake, will form quadrants.)
4. Inform others of your intended survey area.

Procedure for the small-plot egg mass survey—at each survey site:

1. Place the stake in the center of the plot.
2. Use the attached line to establish the circumference of the plot (or boundary of the quadrants).
3. Examine the plot (or quadrant). Start on a known radius and work around the circle. Scan in front, to the sides, and overhead. Examine **all** preferred egg-laying sites.
4. Count **all** observed egg masses.
5. Record **all** critical information (e.g, number of egg masses, site, method, and date of survey).

Egg Mass Surveys Using General Observation Technique

Before the egg mass survey:

1. Know how to identify and locate the egg masses.
2. Select a positive trap (or select an area suspected of being infested) as a starting point.
3. Inform others of your intended survey area.

Procedure for the general observation technique—at each survey site:

1. Start at the positive trap (or within the area suspected of being infested).
2. Examine transit lines placed on the main compass points (north, northeast, east, southeast, south, southwest, west, and northwest). Examine **all** preferred egg laying sites out to 0.5 miles.

3. Count **all** observed egg masses.
4. Record **all** critical information (e.g., number of egg masses, site, method, and date of survey).

Spend **no more than** two days at any one site unless unusual circumstances warrant.

Egg Mass Surveys for Regulatory Purposes

Typically, egg mass surveys for regulatory purposes are done in areas surrounding establishments handling regulated articles. These surveys allow the environs of the establishments to be examined.

- Areas in and around campgrounds
- Forest edges near Christmas tree plantations
- Forest edges near mills
- Forest edges near nurseries

Each egg mass survey for regulatory purposes will provide information to guide quarantine decisions for the establishment handling the regulated articles. Typical quarantine decisions involve:

- Whether spongy moth is present in the environs of the establishment
- If so, whether the environs of the establishment need to be treated

Before the survey, know what egg masses look like and where to find them.

To assess population levels at each survey site, refer to Egg Mass Surveys Using Targeted Visual Surveys (Transects) to survey for egg masses. If possible, walk in areas with preferred host trees.

Procedure for the Survey for Regulatory Purposes

1. Begin the survey in areas of importance (forest edges, campgrounds, campground edges).
2. Select an object transecting an area with preferred hosts.
3. Walk slowly toward the selected object, scanning in front, to the sides, and overhead. Examine **all** preferred egg-laying sites.
4. Count **all** observed new egg masses.
5. Record **all** critical information (e.g., number of egg masses, site, method, and date of survey).
6. Repeat above steps as needed in the establishment environs.
7. Determine the appropriate regulatory action.

Larval Detection Survey

Purpose

Larval trapping can:

- Assess spongy moth larval development
- Assist in evaluating treatments
- Contribute to research
- Determine the presence or absence of a reproducing population

- Determine where and when to apply control methods (chemical or behavioral methods for eradication)

If desired, perform larval trapping along with or in place of egg mass surveys to determine an area to be treated.

Larval trapping takes advantage later instars seeking hiding places that larval traps provide (refer to Figure 2-5).

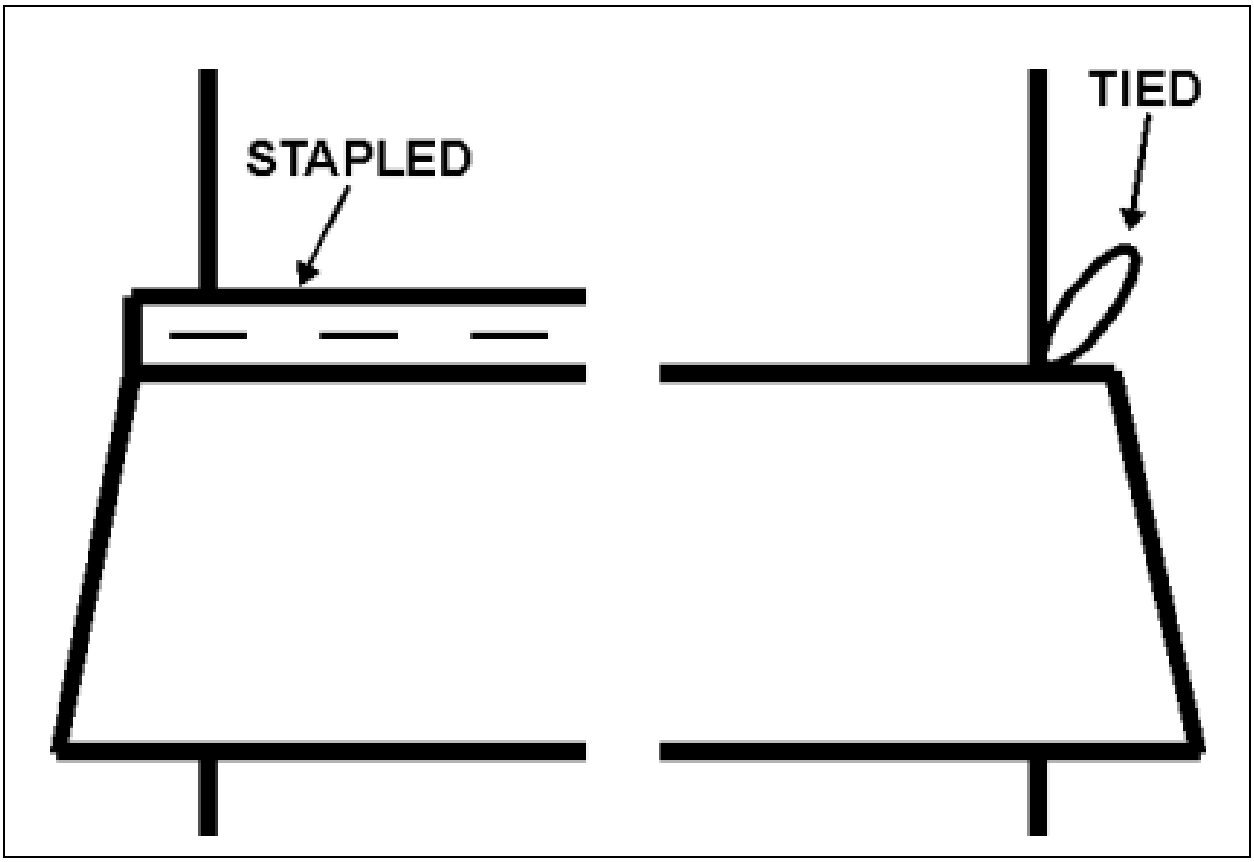


Figure 2-5 Example of a Larval Trap on a Host Tree

How to Trap Larvae

Place traps at chest height by stapling (or tying) the upper corners of pieces of tar paper or burlap to host trees to form a skirt. The burlap or tar paper should be **at least** nine inches wide and long enough to go around the trunk of the tree. Ensure the burlap or tar paper completely encircles the tree trunk but remains loose fitting. If white oak is present, use this tree for larval trapping.

Place the larval traps on the trunk of a tree shortly **before** egg hatch is predicted.

After larvae emerge, check under the burlap or tar paper for larvae and pupae. Check larval traps two or three times a week. Collect, identify, count, and record larvae by tree site.

NOTICE

Earlier instars I to III tend to stay higher in the tree; likely there won't be many under bands until they become instar IV or V.

For best results, check during daylight hours (preferably between 10 a.m. and 3 p.m.) on hot, sunny days.

Also check the larval traps after the larval period. Larvae often pupate under the covering of the larval trap.

Slow the Spread (STS)/Transition Area Survey

Introduction

The STS/transition area is an area between the quarantine area and the uninfested area; because of natural dispersal, the area is in transition from uninfested to generally infested. In States in which the U.S. Forest Service STS Program is operational, spongy moth surveys are conducted as part of that program. However, in States in which the STS Program is not implemented, it is critically important to detect infestations as early as possible. Early infestation detections will prevent the movement of infested articles from the transition area and will provide data to support regulatory decisions. Visit the Slow the Spread of the Spongy Moth website for more information about the STS Program.

STS Survey Types:

- Trap Surveys
- Transition Area Egg Mass Surveys
- Larval Detection Survey

Trap Surveys

Trap surveys are performed to locate established populations in the transition area. If resources permit, the trap surveys are performed throughout the transition area; if resources are limited, trap surveys are performed in areas near the generally infested quarantine area.

In addition to locating infestations, the trap survey helps to determine when a county in the transition area should be shifted to the quarantine area.

1. The recommended trapping density is either of the following:
   A. 2 to 3 km grid (STS action area)—equal to one trap per 1.5-3.5 km^2
   B. 3 to 5 km grid (STS monitoring area)—equal to one trap per 3.5-5.1 km^2
2. The timing for setting traps is critical. Set traps **before** male moths emerge. Phenology models may be available to assist with determining the proper timing for placing traps.
3. Use delta traps or milk carton traps. Milk carton traps are available but are currently **not** used in APHIS-funded survey work.
4. If at all possible, check each trap **at least** once during the middle of the trapping season. Under ideal conditions, trap checking will start when the male moths start flying. Where vandalism is likely, check the traps more often. Phenology models can be useful for determining the proper timing for initial trap checks.
5. If the suspect moths were trapped where spongy moth are not likely to be introduced, send the suspect moths to a designated trained identifier.

Transition Area Egg Mass Surveys

Egg mass surveys are desirable when:

- Egg masses are the only life stage present
- Populations are high enough to make the effort worthwhile.

A basic problem with egg mass surveys is they usually will not detect low-level populations.

Several egg mass survey methods are available; these methods are described in Other Survey Tools.

Chapter 3

Regulatory

Contents

Purpose of Regulatory Activities

The purpose of regulatory activities is to prevent the artificial spread (spread caused by human activity) of spongy moth from quarantine areas to noninfested areas. Refer to Areas Quarantined in the United States for Spongy Moth for county-by-county listings.

Regulatory Methods

Preventing the artificial spread of spongy moth is accomplished by inspecting and treating, if necessary, regulated articles (defined below). Regulated articles may be infested by any spongy moth life stage—egg masses, larvae, pupae, and/or adults.

Regulated Articles

The following regulated articles require inspection and certification:

- Christmas trees (including holiday greenery)
- Logs (including firewood), pulpwood, bark, and bark products
- Mobile homes and associated items
- Nursery stock (trees with roots, shrubs with roots and persistent woody stems, unless they are greenhouse grown throughout the year)
- Outdoor household articles (OHAs)
- Any other products, articles, or means of conveyance posing a high risk of spongy moth artificial spread as determined by an APHIS employee or a State official

Moving regulated articles to noninfested areas is restricted **unless** an inspection and/or treatment of the regulated articles is conducted to minimize the risk of transporting spongy moth life stages to noninfested areas.

Regulated articles may move unrestricted, **without** treatment or inspection, throughout contiguous quarantine areas.

Regulatory Considerations

When planning a regulatory program to prevent the artificial spread of spongy moth from quarantine areas to noninfested areas, factors such as the type of regulated articles, quantity in the shipment, frequency of shipments, availability of personnel, available treatments, and the impact of the regulatory activities on regulated industries **must** be considered.

Mitigation procedures must be conducted, and appropriate documentation **must** accompany all loads of regulated articles leaving quarantine boundaries.

Quantity, Type, and Frequency of Shipments

If establishments regularly ship large quantities of regulated articles outside the quarantine area, the establishments may operate under a compliance agreement (CA). If establishments **infrequently** ship regulated articles outside the quarantine area, USDA–Plant Protection and Quarantine (PPQ) and/or State personnel will inspect and certify individual shipments.

Personnel Available

The personnel available affects regulatory activities. The following individuals, if authorized, may conduct visual examinations, treat, and certify regulated articles:

- PPQ officers
- State personnel—State plant regulatory personnel
- Employees of establishments under CAs
- Qualified certified applicators (QCAs)—pesticide applicators operating under a CA
- Private citizens (**only** for Outdoor Household Articles)

All eligible personnel **must** follow the instructions in this manual.

Documentation

Moving regulated articles from a quarantine area into or through a noninfested area requires documentation by one of the following:

- Federal Certificate
    - PPQ Form 527 (self-adhesive labels)
    - PPQ Form 540 (booklet of certificates)
    - Rubber stamp (provided or approved by USDA)
    - Electronic stamp (provided or approved by USDA)
- Limited Permit
    - PPQ Form 530 (booklet of Limited Permits)
    - PPQ Form 537 (self-adhesive labels)
    - Rubber stamp (provided or approved by USDA)
- Electronic stamp (provided or approved by USDA) Qualified Certified Applicator Document
- Self-Inspection Checklist (PPQ Form 377), contained in: It's the Law: Before Moving, Check for the Spongy Moth, Program Aid No. 2147 (for OHAs)
- Signed Accurate Statement (for logs, pulpwood, bark, and bark products)

Operation Under Compliance Agreements

Any person engaged in the business of growing, handling, or moving regulated articles may enter into a compliance agreement (CA) to facilitate the movement of such articles. CAs are particularly helpful when establishments regularly ship large quantities of regulated articles outside of quarantine areas.

The purpose of a CA is to bring a person or firm into full compliance with the applicable requirements for handling regulated material. A CA provides a written and signed agreement confirming their understanding of the methods, conditions, and procedures necessary for compliance with the spongy moth quarantine (7 CFR 301.45).

A CA specifies necessary safeguards to prevent the spread of spongy moth, such as disinfestation practices or applying chemical materials in accordance with the *Treatment Manual*.

A CA template has been developed for commonly encountered businesses and activities. Operating procedures designed to meet regulatory requirements at individual facilities may be captured in an appendix that details those procedures. On occasion, unique situations may arise in which a standard CA template is **not** suitable, and a unique CA must be developed. These unique CAs **must** be developed in consultation with program management.

An example of the CA template is available in Compliance Agreements.

PPQ officers and/or State personnel train employees of the business operating under a CA. Additionally, the CA signer may provide training to employees as needed.

Employees are only able to inspect and certify regulated articles when their establishment is under an active CA and the employees have successfully completed appropriate training.

Employees who have successfully completed training and are operating under CAs are able to perform:

- Completing appropriate documentation
- Handling regulated articles and completing mitigation procedures according to a standardized procedure
- Treating, if necessary, in a safe and effective manner to destroy spongy moth life stages

On an as-needed basis, PPQ officers and/or State personnel monitor the employees of the cooperating establishments to ensure compliance.

High-Risk Sites

A high-risk site is a site where spongy moth is present on the premises, Regulated Articles, and/or in the surrounding area. High-risk sites are likely to provide a pathway for human-assisted spongy moth spread to noninfested areas.

There are three categories of high-risk sites and establishments based on the type of regulated articles and documentation required for movement. Sites and establishments listed below provide examples of potential high-risk sites and establishments in each category. These lists are **not** exhaustive.

Category One High-Risk Sites and Establishments

Category One high-risk sites and establishments commonly operate under a State or Federal CA. At Category One high-risk sites and establishments **both** the premises and the regulated articles **must** be inspected by a State or Federal official. Category One high-risk sites and establishments include, **but are not limited to**:

- Nurseries
- Christmas tree plantations

Category Two High-Risk Sites and Establishments

Category Two high-risk sites and establishments commonly operate under a State or Federal CA. At Category Two high-risk sites and establishments, **only** regulated articles **must** be inspected. Category Two high-risk sites and establishments include, **but are not limited to**:

- Firewood and associated production and distribution yards
- Logging sites
- Modular buildings, dealerships, rental facilities, transporters, and associated holding areas, (e.g., mobile homes, mobile offices and prefabricated housing)
- Processing facilities and associated yards for logs, pulpwood, bark, and bark products
- Wood chip mills and associated yards
- Wood waste and associated disposal yards

Category Three High-Risk Sites and Establishments

Category Three high-risk sites and establishments typically do **not** operate under State or Federal CAs. At Category Three high-risk sites and establishments the emphasis is on outreach and self-inspection. Category Three high-risk sites and establishments include, **but are not limited to**:

- Campsites and locations that host recreational vehicles (RVs)
- Military bases (due to potentially infested vehicles and cargo)
- Moving companies

Moving Regulated Articles from High-Risk Sites and Establishments

PPQ officers or State personnel inspect high-risk sites and establishments **before** entering into CAs and periodically thereafter. When a CA is established, PPQ officers or State personnel train company employees on provisions of the CA, treatment options for regulated articles, and documentation requirements.

If the company is operating under an active CA, regulated articles can be moved from Category One or Category Two high-risk sites or establishments because they have been appropriately treated/visually examined and the appropriate documentation is completed.

Regulated articles can be moved from Category Three high-risk sites and establishments **after** a visual examination. Regulated articles moved from a Category Three high-risk site or establishment **must** be accompanied by appropriate documentation (e.g., APHIS program aid 2417).

Nursery Stock and Christmas Trees

The procedures outlined below are used to certify these items:

- Trees and shrubs grown or stored outdoors in a nursery
- Christmas trees grown as “balled and burlapped” nursery stock
- Christmas trees grown for the cut Christmas tree market, which are **not** classified as nursery stock

NOTICE

Trees and shrubs that have been continuously grown in a greenhouse under conditions in which **no** spongy moth infestation would be possible as determined by an inspector may be issued a certificate without piece-by-piece inspection. Refer to 7 CFR 301.45-5(a)1-4.

Inspecting Nurseries and Christmas Tree Plantations

The purpose of inspecting nurseries and Christmas tree plantations is to determine what mitigation procedures may be required prior to shipping from the quarantine area.

Inspection Timing

For regulatory purposes, inspections can occur whenever movement of regulated articles is planned. The presence of **any** spongy moth life stage (egg mass, larva, pupa, or adult) found on

or near a regulated article constitutes a high risk of artificial spread. Inspectors rely on their knowledge of current population densities in the immediate area and previous history of the high-risk site to determine inspection timing.

In general, annual inspections for egg masses involving the premises and surrounding areas tend to occur after leaf fall in the autumn, when egg masses are no longer hidden by leaves, and may continue until leaves expand to provide cover in the spring or when larvae have dispersed. Larval inspections occur during and after dispersal from the egg mass. Phenology models are available to assist in determining timing of the larval development stages.

Inspection Methods

Inspections may include the premises, the regulated articles, and all preferred hosts in the surrounding area. What is included and how the inspection is performed is determined by the type of establishment to be inspected and the regulated articles to be moved. Whether the inspection is all encompassing or only of the regulated articles, it should be noted that egg masses can be found on all surfaces and may be hidden in cracks or crevices. For a description of preferred spongy moth egg-laying sites, refer to Where to Conduct an Egg Mass Survey.

Inspection Results

Inspectors use their judgment, and the inspection criteria listed below to determine if conditions favor spongy moth artificial spread.

- One egg mass (or more) found on the regulated articles or within three meters (10 feet) of the articles
- Twelve or more egg masses per hectare (five or more per acre) are found within approximately 30 meters (100 feet) of the articles
- Heavy larval infestations found within 1,600 meters (one mile), which could result in infestation through blow-in or larval migration

When any of the above conditions (or similar threatening conditions) exist:

The PPQ officer can issue an Emergency Action Notification, PPQ Form 523. The EAN will state the required action(s) that **must** be performed to allow shipment. Refer to the *Treatment Manual* for more information on available treatments; **or**

A CA stipulating appropriate mitigation procedures is required

If **no** spongy moth life stages are found during the inspection, certificates may be issued for the regulated articles.

Treating Category One High-Risk Sites

When required, the premises of category one high-risk sites are treated with insecticide applications. Treatment is the responsibility of the regulated establishment. Insecticide applications may be **either** aerial applications or ground applications by hydraulic sprayers **or** mist blowers.

- Aerial applications are usually preferred to ground applications. Aerial applications give better insecticidal coverage to the forest canopy and surrounding areas and are usually used

to treat in or near the following high-risk sites: recreational areas; mills; nurseries; and Christmas tree plantations.

- Ground application using a hydraulic sprayer is the preferred method for treating mobile home parks or isolated areas in nurseries.

When to Treat

Apply the insecticide when general egg hatch in the area is completed. Perform applications when first, second, and third instar larvae are present. Phenology modeling could also be used to help determine the proper timing of insecticide applications. Proper treatment timing is essential as pesticide effectiveness is reduced when the larvae are beyond the third instar. Best results are obtained if the application can be delayed until general foliage of preferred hosts is 1/3 to 1/2 grown. If possible, treat immediately before moving regulated articles.

Treating the High-Risk Site

Treat the infested portion of the high-risk site and the surrounding area to a depth equal to the effective range of the spray equipment. A **minimum** depth of 70 feet will usually suffice to keep migrating late instar larvae from reinfesting the site. If reinfestation does occur, additional treatments are necessary. In heavily infested sites, two or three applications seven to ten days apart may be necessary. Ensure all necessary permits and permissions are obtained **prior** to treatment.

Treatment Documentation

Records of **all** treatments **must** be retained for two years or according to State documentation retention requirements, whichever is greater, and made available to the inspector upon request.

After a high-risk site treatment and following any appropriate postentry requirement for the treatment, a PPQ officer or State official reinspects the site following the inspection protocols described above. If the treatment was (and is) effective, the PPQ officer or State official notes the action taken on the EAN and rescinds the EAN.

Mitigation Procedures for Small Quantities of Regulated Articles

Small quantities of regulated articles are defined as a quantity of regulated articles that can be 100% inspected by a State or Federal official in one working day.

Small quantities of regulated articles from a quarantine area **must** be inspected on a piece-by-piece basis by:

- Workers at the establishments under PPQ direction
- PPQ officers
- State personnel

For example, piece-by-piece inspection is used for assembly yard inspection of articles such as collected native plant material.

During a piece-by-piece inspection, inspect **all** surfaces including bark crevices where egg masses may be attached. When egg masses or larvae are found, treat either by physically removing after spraying with Golden Pest Spray Oil or by applying insecticide.

NOTICE

The preferred treatment for egg masses is physically removing after spraying with Golden Pest Spray Oil (refer to the instructions under Treatments).

Mitigation Procedures for Large Quantities of Regulated Articles

Large quantities of regulated articles are defined as a quantity of regulated articles that would require **more than** one working day to be 100% inspected by a State or Federal official.

Large quantities of regulated articles from a quarantine area are **not** usually inspected on a piece-by-piece basis. Large quantities of regulated articles are treated by:

- Treating the nursery or Christmas tree plantation as a high-risk site
- Spraying the regulated articles with an insecticide
- Fumigating the regulated articles.

Spray Treatments for Large Quantities of Regulated Articles

For larvae on plants in large quantities of regulated articles, the following insecticides are among the products registered for spray treatments:

- Acephate
- Carbaryl
- Diflubenzuron
- Phosmet
- Spinosad
- Tebufenozide

Fumigation for Large Quantities of Regulated Articles

Refer to the *Treatment Manual* for procedural instructions on conducting methyl bromide (MB) fumigations.

NOTICE

Some evergreen species, especially narrow-leafed evergreens and some azaleas, may be injured by MB fumigation. Plants in a dormant state are more tolerant to fumigation.

APHIS will **not** be responsible for damage of any type resulting from a fumigation or an attempted fumigation.

Trees and shrubs can be fumigated with MB at natural atmospheric pressure (NAP) using either a short or long exposure schedule. **Do not** use MB containing chloropicrin.

Table 3-1 MB Treatment Schedule (at NAP) for egg masses of *Lymantria dispar* (spongy moth) on deciduous, dormant woody plants (except for broadleaved genera such as *Azalea*, *Berberis*, *Camellia*, *Ilex*, and *Photinia*)[1]

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
90-96°F	2 lbs	2 hrs
80-89°F	2.5 lbs	2 hrs
70-79°F	3 lbs	2 hrs
60-69°F	3 lbs	2.5 hrs
0-59°F	3 lbs	3 hrs
40-49°F	3 lbs	3.5 hrs

Table 3-2 MB Treatment Schedule (at NAP) for egg masses of *Lymantria dispar* (spongy moth) on deciduous, dormant evergreens (including conifers) and certain broadleaved genera such as *Azalea*, *Berberis*, *Camellia*, *Ilex*, and *Photinia*)[2]

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
90-96°F	1.5 lbs	2 hrs
80-89°F	2 lbs	2 hrs
70-79°F	2.5 lbs	2 hrs
60-69°F	2.5 lbs	2.5 hrs
0-59°F	2.5 lbs	3 hrs
40-49°F	2.5 lbs	3.5 hrs

Table 3-3 MB Treatment Schedule at NAP (Chamber or Tarpaulin) for egg masses of *Lymantria dispar* (spongy moth) cut conifer Christmas trees[3]

Temperature	Dosage Rate (lb/1,000 ft^3)	Min. Conc. at.5 hrs	Min. Conc. at 2.5 hrs	Min. Conc. at 3 hrs	Min. Conc. at 4 hrs	Min. Conc. at 5 hrs
75°F or above	1.5 lbs	18	12	-	-	-
70-74°F	2 lbs	24	16	-	-	-
60-69°F	2.5 lbs	30	-	24	-	-
60-69°F	3 lbs	36	24	-	-	-

[1] This table is similar to treatment T201-d-1 in the *Treatment Manual*.

[2] This table is similar to treatment T201-b-1 in the *Treatment Manual*.

[3] This table is similar to treatment T313-d-1 in the *Treatment Manual*.

Temperature	Dosage Rate (lb/1,000 ft^3)	Min. Conc. at.5 hrs	Min. Conc. at 2.5 hrs	Min. Conc. at 3 hrs	Min. Conc. at 4 hrs	Min. Conc. at 5 hrs
50-59°F	3 lbs	36	-	-	24	-
50-59°F	4 lbs	48	32	-	-	-
40-49°F	3.5 lbs	42	-	-	-	28
40-49°F	5 lbs	60	40	-	-	-

NOTICE

On pine: if treating pine Christmas trees for **both** spongy moth egg masses and pine shoot beetle, use the schedule for pine shoot beetle.

Logs, Pulpwood, Holiday Greenery, Bark and Bark Products

The procedures outlined below are used to certify these items:

- Bark and bark products
- Firewood
- Logs (includes logs for veneer, saw timber, etc.)
- Pulpwood (includes bolts, edgings, trimmings, slabs, etc.)
- Other forest products

Procedures for Moving Sawlogs

The Society of American Foresters defines a sawlog as “a log that meets minimal regional standards of diameter, length, and defect, intended for sawing.”

Although not mentioned specifically, veneer logs are subject to the same requirements as sawlogs.

Shipping Facilities

People or firms that regularly move sawlogs to destinations outside the quarantine area **must** operate under a compliance agreement (CA). A CA provides a written and signed agreement confirming their understanding of the methods, conditions, and procedures necessary for compliance with the spongy moth quarantine (7 CFR 301.45).

Mitigation Procedures

If they have been examined according to a standardized procedure, sawlogs originating from a quarantine area may be moved outside of the quarantine area. Sawlogs **must** be accompanied by a signed Accurate Statement stating 100% of the exterior surfaces were visually examined **no more than** five days prior to the date of movement.

Inspectors (PPQ officers or State personnel) or employees of establishments operating under a CA examine the entire exterior surface area (100% visual examination) of each sawlog in the shipment.

The “laid out” method is the recommended method for 100% visual examination of the entire surface area of all sawlogs. During the piece-by-piece examination, all exposed surfaces and crevices on the sawlog are examined for egg masses, larvae, and pupae. Alternative inspection methods **must** be approved by APHIS or State personnel. If any spongy moth life stages are present, qualified personnel apply a suitable treatment **before** shipment.

Suitable treatments are listed under Treatments.

⚠ WARNING

Log inspection involves work in a log-handling yard, obey the following safety precautions:

- Always wear a hardhat and steel-toe work boots
- Always listen and watch for yard equipment
- Because log stacks are often unstable, **never** go on or near log stacks
- Comply with any other safety precautions required by the facility

Laid-Out Visual Screening Procedure

Using the “laid-out” method, PPQ officers, State officials, or individuals operating under a CA ensure no spongy moth life stages are present by conducting a 100% visual examination. The 100% visual examination **must** occur **no more than** five days prior to moving sawlogs out of quarantine areas. If the sawlogs are not moved within five days, they **must** be reexamined and moved within five days of the reexamination.

Procedure for a “laid-out” 100% visual examination:

1. Plan in advance for the sawlogs to be “laid out” with personnel and equipment on hand to clean and turn the logs.
2. Walk between the rows, examining the upper surface of sawlogs in the near row and the side surface of logs in the next row. If eggs masses are found, saturate with Golden Pest Spray Oil (EPA Reg. No. 57538-11) and remove using a wire brush or paint scraper. Vigorously brush or scrape the entire egg mass from the surface. If larvae or pupae are found, remove and destroy.
3. Have the sawlogs turned so the upper surface becomes the bottom.
4. Repeat Step 2. Examine (and treat if necessary) the surfaces **not** previously examined, completing a 100% visual examination of all exterior surfaces.
5. Arrange for shipment within five days by shippers under CA.
6. Document the inspection by completing a signed Accurate Statement.

Sawlogs originating within the spongy moth quarantine area can be moved outside quarantine boundaries when:

- 100% visual examination of the external surface area is completed; **and**
- Sawlogs are **either** free of spongy moth life stages **or** treated to eliminate life stages; **and**
- Required documentation is securely attached to the waybill or other shipping documents accompanying the article

Required Documentation

To ship sawlogs, two types of documents are acceptable:

- Federal Certificate
    - Issued by PPQ officers or trained personnel operating under a CA for moving sawlogs if the material was handled, utilized, processed, or treated in a manner determined by PPQ officers or State officials to remove or destroy **all** spongy moth life stages prior to leaving the quarantine area.
- Signed Accurate Statement
    - Issued by trained personnel operating under a CA when 100% visual examination is conducted. Visual examination **must** occur within 5 days for moving outside the quarantine area.

Documentation **must** be attached to shipping documents accompanying the sawlogs. These documents are provided to the receiving facility upon delivery for the receiving facility's records.

Accurate Statement forms are provided by PPQ officers and/or State personnel during the establishment of a CA. Individuals operating under a CA complete Accurate Statement forms and attach to the shipping documents. Individuals operating under a CA may reproduce or request additional Accurate Statement forms as needed.

Sawlogs originating outside of quarantine areas may transit directly through quarantine areas **without** an Accurate Statement **if all the following are true**:

- Its point of origin is clearly indicated by shipping documents
- Its identity has been maintained
- It has been safeguarded against infestation while in quarantine areas during the months of April through August.

Receiving Facilities

Receiving facilities located in nonquarantine areas can receive sawlogs from quarantine areas **if** the receiving facility has an active CA specifying handling practices. In addition, the receiving facility **must** accept sawlogs **only** from loggers or shippers under CA.

Required Documentation

Sawlogs **must** arrive at the receiving facility with a signed Accurate Statement or Federal Certificate attached to the waybill or other shipping documents accompanying the shipment.

Receiving facilities outside quarantine areas operating under a CA **must** ensure sawlogs are delivered with appropriate documentation attached to the shipping documents. If the required documentation does **not** accompany the shipment, the receiving facility **must** notify PPQ or State personnel immediately.

Procedures for Moving Pulpwood

The Society of American Foresters defines pulpwood as "roundwood, wholetree chips, or wood residues that are used for the production of wood pulp."

Shipping Facilities

Firms that regularly move pulpwood to destinations outside the quarantine area must operate under a CA. A CA provides a written and signed agreement confirming their understanding of the methods, conditions, and procedures necessary for compliance with the spongy moth quarantine (7 CFR 301.45).

Mitigation Procedures

Pulpwood may be moved if either:

- Fumigated; refer to the *Treatment Manual*
- Moved to receiving mills under CA by shippers under CA
    - Moving pulpwood from a quarantine area to a noninfested area involves special handling by the following:
        - Employees at the sending site
        - Employees of the shipping companies
        - Employees at the receiving mill

Employees at establishments moving pulpwood out of a quarantine area **must** inspect the shipment to ensure the following:

- Only shippers who are under CA will transport pulpwood
- Shipments will leave the quarantine area accompanied by appropriate documentation
- Pulpwood shipments will **only** go to receiving mills in noninfested areas when the receiving mills are under CA

NOTICE

Shipments remaining within contiguous quarantine areas **do not** have any restrictions.

Required Documentation

To ship pulpwood, three types of documents are acceptable:

- Federal Certificate
    - Issued by PPQ officers or trained personnel operating under a CA for moving sawlogs if the material was handled, utilized, processed, or treated in a manner determined by PPQ officers or State officials to remove or destroy **all** spongy moth life stages prior to leaving the quarantine area
- Limited Permit
    - Issued by PPQ officers or trained personnel operating under a CA to allow moving sawlogs to receiving facilities outside the quarantine area operating under a CA for specified handling, utilization, processing, or treatment

- Signed Accurate Statement
    - Issued by personnel operating under a CA when 100% visual examination is conducted. When 100% visual examination of the entire surface area of the sawlogs shipment is **not** possible, all readily visible surfaces of the shipment are examined. Visual examination **must** occur within five days of moving outside the quarantine area

Documentation **must** be attached to shipping documents accompanying the pulpwood. These documents are provided to the receiving facility upon delivery for the receiving facility's records.

Documentation forms are provided by PPQ officers and/or State personnel during the establishment of a CA. Individuals operating under a CA issue the documentation and attach it to the shipping documents. Individuals operating under a CA may reproduce or request additional forms as needed.

Receiving Facilities

Employees of mills receiving pulpwood operating under CA **must** ensure:

- Pulpwood shipments from quarantine areas arrive from suppliers under CA and with correct documentation
- Pulpwood will be stored, handled, and processed in accordance with all State requirements

Required Documentation

The documentation accompanying pulpwood to receiving facilities is dependent upon the mitigation procedures conducted at the shipping facility.

Depending on circumstances, pulpwood may arrive at receiving facilities with:

- Federal Certificate
    - Issued by PPQ officers or trained personnel operating under a CA for moving pulpwood if the material was handled, utilized, processed, or treated in a manner determined by PPQ officers or State officials to remove or destroy **all** spongy moth life stages prior to leaving the quarantine area
- Limited Permit
    - Issued by PPQ officers or trained personnel operating under a CA to allow moving pulpwood to receiving facilities outside the quarantine area operating under a CA for specified handling, utilization, processing, or treatment
- Signed Accurate Statement
    - Issued by personnel operating under a CA when 100% visual examination is conducted. When 100% visual examination of the entire surface area of the pulpwood shipment is **not** possible, all readily visible surfaces of the shipment are examined. Visual examination **must** occur within five days of moving outside the quarantine area

All required documentation **must** be kept for two years or a time period specified in the receiving facility CA, whichever is greater.

Procedures for Moving Wood Chips, Bark Chips, and Bark Products

The Federal spongy moth quarantine (7 CFR 301.45) provides:

Bark. the tough outer covering of the woody stems of trees, shrubs, and other woody plants as distinguished from the cambium and inner wood.

Bark products. products containing pieces of bark including bark chips, bark nuggets, bark mulch, and bark compost.

Shipping Facilities

Firms that regularly move wood chips with bark attached, bark chips, and bark products to destinations outside the quarantine area **must** operate under a CA. A CA provides a written and signed agreement confirming their understanding of the methods, conditions, and procedures necessary for compliance with the spongy moth quarantine (7 CFR 301.45).

Mitigation Procedures

Wood chips, bark chips, and bark products, including biofuel, may be moved if:

- composted
- produced by a hammermilling process
- moved to receiving mills under CA by shippers under CA.

Mitigations procedures vary depending on the end use of the regulated products.

Composting

Wood chips, bark chips, and bark products can be composted to mitigate the risk of spreading spongy moth. For complete details about approved composting procedures, refer to Procedures for Composting Bark.

Composting treatments require a starting compost pile of **at least** 200 cubic yards. The compost pile remains undisturbed until the internal temperature reaches 120 °F (49 °C) for **at least** four continuous days or 100 °F (37.8 °C) for **at least** six continuous days. The compost pile is then turned so the outer layer, to a depth of three feet, becomes the core material. The turned compost pile then remains undisturbed until temperature requirements are achieved.

Hammermilling process

Bark chips, bark mulch, and other bark products may be produced by log debarking, followed by chip size reduction using a hammermill. A hammermill consists of a large steel drum with a rapidly rotating shaft on which hammers are mounted. The rotor and hammers are spun at a high speed inside the drum while the bark is being fed into the drum via a feed hopper. The impact of the hammers on the bark pulverizes the bark into smaller pieces, which then exit the drum through a sizing screen. A common form of the hammermill is a tub grinder. Bark chips or bark mulch of common commercial dimensions produced by this process are considered fully mitigated and can be shipped **without** further restriction.

Moving to receiving facilities

Wood chips, bark chips, and bark products can be moved to receiving facilities operating under a CA for specified handling, utilization, processing, or treatment.

Employees at establishments moving wood chips, bark chips, and bark products out of a quarantine area **must** inspect the shipment to ensure:

- **Only** shippers under CA will transport wood chips, bark chips, and bark products
- Shipments will leave the quarantine area accompanied by appropriate documentation
- Shipments will **only** go to receiving facilities in noninfested areas when the receiving mills are under CA

NOTICE

Shipments remaining within contiguous quarantine areas **do not** have any restrictions.

Required Documentation

To ship wood chips, bark chips, and bark products two types of documents are acceptable:

- Federal Certificate
    - Issued by PPQ officers or trained personnel operating under a CA for moving wood chips, bark chips, and bark products if the material was handled, utilized, processed, or treated in a manner determined by PPQ officers or State officials to remove or destroy **all** spongy moth life stages prior to leaving the quarantine area, e.g., wood chips, bark chips, and bark products that have been composted, processed through hammermill machinery, or otherwise fully mitigated are eligible to move under a Certificate.
- Limited Permit
    - Issued by PPQ officers or trained personnel operating under a CA to allow moving **untreated** wood chips, bark chips, and bark products to receiving facilities operating under a CA for specified handling, utilization, processing, or treatment.

Documentation **must** be attached to shipping documents accompanying the wood chips, bark chips, and bark products. These documents are provided to the receiving facility upon delivery for the receiving facility's records. If treated bark products are sold to a consumer, the certificate may be attached to the invoice or packaging.

Documentation forms are provided by PPQ officers and/or State personnel during the establishment of a CA. Individuals operating under a CA issue the documentation and attach it to the shipping documents and may reproduce or request additional forms as needed.

Receiving Facilities

Employees of the receiving facilities operating under CA must ensure:

Shipments of bark products from quarantine areas arrive from suppliers under CA and with correct documentation

Wood chips, bark chips, and bark products will be processed in accordance with any State requirements

Required Documentation

Documentation accompanying wood chips, bark chips, and bark products to receiving facilities is dependent upon the mitigation procedures conducted at the shipping facility. Wood chips, bark chips, and bark products may arrive at receiving facilities with:

- Federal Certificate
    - Issued by PPQ officers or trained personnel operating under a CA for moving wood chips, bark chips, and bark products if the material was handled, utilized, processed, or treated in a manner determined by PPQ officers or State officials to remove or destroy **all** spongy moth life states prior to leaving the quarantine area.
- Limited Permit
    - Issued by PPQ officers or trained personnel operating under CA to allow moving **untreated** wood chips, bark chips, and bark products to receiving facilities operating under a CA for specified handling, utilization, processing, or treatment.

Procedures for Moving Holiday Greenery

Holiday greenery is defined as wreaths, garlands, and bulk boughs typically made of, **but not limited to**, fir, spruce, pine, and cedar species commonly sold for decorative purposes.

Shipping Facilities

People or firms that regularly move holiday greenery to destinations outside the quarantine area **must** operate under a CA. A CA provides a written and signed agreement confirming their understanding of the methods, conditions, and procedures necessary for compliance with the spongy moth quarantine (7 CFR 301.45).

Mitigation Procedures

Holiday greenery originating from a quarantine area may be moved outside of the quarantine area if:

- Harvested articles measure **less than** ½" in diameter.
- Harvested articles are from an area determined to be **free** of spongy moth life stages by Federal or State personnel (field inspections and/or inspection of boughs at collection site).
- Articles are moved to a receiving facility under CA for inspection by shippers under CA.

Required Documentation

Documentation **must** be attached to the waybill or other supplying documents accompanying the shipment. Documentation forms are provided by PPQ officers and/or State personnel during the establishment of a CA. Individuals operating under a CA issue the documentation and attach it to the shipping documents and may reproduce or request additional forms as needed. To ship holiday greenery two types of documents are acceptable:

- Federal Certificate
    - Issued by PPQ officers or trained personnel operating under a CA for moving holiday greenery if the articles are inspected and found **free** of spongy moth life stages determined by USDA–APHIS or State personnel field inspection results; a fumigation was the mitigation procedure used as treatment; a self-inspection of the articles by trained personnel operating under a CA was completed.
- Limited Permit
    - Issued by PPQ officers or trained personnel operating under CA to allow moving holiday greenery to receiving facilities operating under a CA for specified handling, utilization, processing, or treatment.

Receiving Facilities

Employees of the holiday greenery receiving facilities operating under CA **must** ensure:

- Shipments from quarantine areas arrive from suppliers under CA and with correct documentation
- Holiday greenery will be processed according to State requirements

Required Documentation

The documentation accompanying holiday greenery to receiving facilities is dependent upon the mitigation procedures conducted at the shipping facility. Holiday greenery may arrive at receiving facilities with:

- Federal Certificate
    - Issued by PPQ officers or trained personnel operating under a CA for moving holiday greenery if the articles are inspected and found **free** of spongy moth life stages or treated as indicated in State's field inspection report; articles are fumigated prior to shipment; articles are self-inspected by trained personnel under a CA prior to shipment.
- Limited Permit
    - Issued by PPQ officers or trained personnel operating under CA to allow moving holiday greenery **not** inspected prior to movement and transported to a receiving facility under CA for specified handling, utilization, processing, or treatment.

Procedures for Moving Other Forest Products

Other forest products are products not included in Logs, Pulpwood, Holiday Greenery, Bark and Bark Products capable of moving spongy moth life stages. Other forest products may include birch bark, nontimber forest products, etc.

Because other forests products may include various nontimber articles typically moving in small quantities, these should be handled on a case-by-case basis. Guidance provided for the other articles covered in this chapter may provide a starting point for determining appropriate

procedures for allowing movement of these articles. Program management should be consulted when these situations are encountered.

Outdoor Household Articles

Outdoor House Articles (OHAs) include any article associated with a household that has been kept outside the home. OHAs include, **but are not limited to**:

- Awnings
- Barbecue grills
- Bicycles
- Boats
- Doghouses
- Firewood (when permitted under other applicable State and Federal regulations
- Garbage containers
- Garden tools
- Outdoor furniture
- Recreational vehicles (RVs)
- Tents
- Tires
- Trailers

NOTICE

Firewood is an at-risk pathway for the movement of a number of pests in addition to spongy moth. For this reason, some States have State-level requirements for moving firewood.

Self-Inspection Checklist (PPQ Form 377)

This checklist is contained in: It's the Law: Before Moving, Check for the Spongy Moth, Program Aid No. 2147 (for OHAs). PPQ Form 377 contains a list of OHAs on which spongy moth life stages are often found and therefore **must** be inspected. However, any list is likely to be incomplete, because spongy moth females can lay their eggs on any surface and the spongy moth larvae can rest or pupate on any article.

Containerized moving services are an emerging pathway for the human-assisted spongy moth movement. OHAs should be inspected and a self-inspection checklist (in It's the Law: Before Moving, Check for the Spongy Moth, Program Aid No. 2147) **must** be completed. The self-inspection checklist **must** accompany the moving container throughout the move to the final destination. In addition, the interior and exterior of the container **must** be inspected and all spongy moth life stages **must** be removed prior to exiting the quarantine area.

Outreach to Establishments Shipping OHAs

When OHAs are to be shipped from a quarantine area into or through a noninfested area, the OHAs **must** be treated as regulated articles. Prior to the move, OHAs **must** be inspected (and treated, if necessary).

To regulate the OHA movement from quarantine areas, PPQ and/or State personnel are encouraged to contact the following establishments:

- All moving companies in the State
- All truck and trailer rental companies in the State
- Media
    - Radio
    - Television
    - Newspapers

At all the above-listed establishments, PPQ and/or State personnel distribute information, such as the Self-Inspection Checklist (PPQ Form 377), contained in It's the Law: Before Moving, Check for the Spongy Moth, Program Aid No. 2147 (for OHAs), and explain spongy moth quarantine. At the moving companies and truck and trailer rental companies, PPQ and/or State personnel provide:

- Information for distribution to homeowners and renters who must be regulated
- Current list of qualified certified applicators (QCAs) authorized to work in the State. Refer to Inspection by Qualified Certified Applicators (QCAs) Under Compliance Agreements (CAs) on for more information.

Because OHAs are the most likely means of artificial spread, a strong public relations campaign is particularly important. The public must be informed through the media. PPQ personnel can obtain assistance in dealing with the media from Legislative and Public Affairs (LPA), a unit within APHIS.

Self-Inspection by Homeowners or Renters

Employees of moving companies, rental companies, and contract carriers must contact, well before their moves, the homeowners or renters who must be regulated. The homeowners or renters who must be regulated are the people who are moving OHAs from a quarantine area into or through a noninfested area. The homeowners and renters who must be regulated must be informed of their right to inspect their own OHAs. PPQ officers and/or State personnel are responsible for ensuring moving companies, rental companies, and contract carriers are provided with outreach materials, have access to It's the Law: Before Moving, Check for the Spongy Moth, Program Aid No. 2147, and are aware of the regulations.

Homeowners or renters who must be regulated can inspect their own OHAs if they use the procedures in It's the Law: Before Moving, Check for the Spongy Moth, Program Aid No. 2147 (for OHAs). Homeowners and renters who must be regulated can obtain this Program Aid from the APHIS website, PPQ officers, State personnel, employees of moving companies, rental companies, and contract carriers.

Inspection by Qualified Certified Applicators (QCAs) Under Compliance Agreements (CAs)

If the homeowners or renters who must be regulated **do not** desire to conduct a self-inspection, QCAs operating under CAs can inspect OHAs.

Operating under CAs, QCAs who inspect OHAs are:

- Trained by PPQ
- State personnel
- Licensed as pesticide applicators in each State in which they operate
- Responsible to PPQ personnel for preparing and distributing certifying documents
- Monitored by PPQ or State personnel to ensure quality inspections.

Inspections are done **no more than** 5 days prior to the move during the high-risk period between April and August and **no more than** 14 days prior to the move between September and March.

Preinspection Procedure

Step 1: Ask the homeowner or renter who must be regulated to:

Identify and assemble all OHAs (including firewood) to be inspected in one location or make the OHAs accessible for inspection.

Step 2: Assemble all tools necessary for the inspection

- Certifying documents to record the inspection
- Drop cloth to lie on when examining the undersides of OHAs
- Flashlight, preferably a small, high-intensity flashlight, to illuminate nooks and crannies
- Hand mirror, preferably small and plastic-covered, to examine the undersides of OHAs
- Paint scraper or wire brush to scrape off egg masses
- Probe, preferably thin and flexible, possibly a screwdriver, to probe nooks and crannies
- Tools, such as Phillips and standard screwdrivers, to disassemble OHAs, if necessary
- Tools, such as a lug wrench, a jack, and blocks, to remove wheels to check wheel wells and brakes, if necessary
- Work clothes, such as coveralls

Inspection Procedure

Infested OHAs are more likely when there are indications of a large spongy moth population in the surrounding area. However, even when there is no indication of a spongy moth population, OHA infestation is still possible. Always perform a thorough examination of each article.

Step 1: Thoroughly examine each OHA and any household article that has been outdoors

The examination **must** include the entire surface area, including nooks and crannies. Use probes and flashlights to examine the nooks and crannies. Turn articles over to examine the lower surfaces. Remember that spongy moth females favor sheltered surfaces for egg laying. If an article **cannot** be turned over, examine by crawling underneath on a drop cloth, using a hand mirror, and/or probing with a screwdriver.

If necessary, disassemble articles likely to harbor spongy moth. Pay special attention to articles near egg masses, larvae, or pupae.

Although they may **not** be typical OHAs, examine the following articles as if they were OHAs:

- Articles left outside
- Articles stored in areas open to the outside
- Articles stored in areas with an opening to the outside
- Articles stored indoors, but used outdoors

As articles are examined, separate the infested items from noninfested items.

Step 2: Treat the infested articles; as an alternative, infested articles can be treated during their examination

The spongy moth life stage most likely to be encountered while inspecting OHAs is egg masses. Treat egg masses by saturating them with Golden Pest Spray Oil and removing any egg masses with a paint scraper or wire brush. Refer to Treatments for more details.

Step 3: Safeguard the inspected articles

If any inspection is not done on moving day, safeguard the articles from reinfestation. Safeguard the inspected articles by:

- Covering with plastic sheeting or plastic bags
- Packing immediately in moving van or truck and enclosing or covering
- Storing articles indoors

Disposable plastic bags or plastic sheeting safeguards articles for several days before a move. On moving day, remove plastic bags and/or sheeting from regulated articles and discard.

Step 4: Document the inspection

Refer to OHA Inspection Documentation.

Treatments

- Physically removing egg masses (preferred for OHAs)
    - Using a wire brush or paint scraper, remove an egg mass from an OHA. Brush or scrape vigorously to remove **all** the egg mass; however, **do not** brush or scrape so vigorously the OHA is damaged.
- Physically Removing egg masses after spraying
    - Apply Golden Pest Spray Oil to an egg mass, using:
        - Sprayer with an adjustable nozzle
        - Paint brush
        - Similar brush
    - Thoroughly saturate the egg masses to the point of runoff so the egg mass is “soaked.” The Golden Pest Spray Oil rapidly penetrates destroying even the innermost eggs. Then, physically remove the egg mass using a wire brush or paint scraper. Vigorously brush or scrape **all** the egg mass from the surface.

NOTICE

The methods above are preferred over insecticide or fumigation.

- Fumigating egg masses
  - The *Treatment Manual* contains the Treatment Schedule for OHAs
- Spraying larvae
  - When physically removing larvae is **not** practical, a contact insecticide labeled for treating spongy moth larvae may be used. Follow label instructions carefully.

OHA Inspection Documentation

Four types of documents are acceptable:

- Federal Certificate issued by PPQ and State personnel
- Limited Permit issued by PPQ and State personnel
- QCA document plus an attached copy of the document (Qualified Certified Applicator Document)
- Self-Inspection Checklist (in It's the Law: Before Moving, Check for the Spongy Moth, Program Aid No. 2147 (for OHAs) for homeowners or renters who self-inspect

Mobile Homes, Mobile Offices, and Associated Items

Mobile homes and associated items are only regulated when they are moved from a quarantine area into or through a noninfested area. To move a mobile home or mobile office from a quarantine area into or through a noninfested area, an inspection is necessary before the move. Additionally, certifying documents are necessary during and after the move.

Preparing for Regulating Mobile Homes and Mobile Offices

To regulate mobile home or mobile office movement from quarantine areas, PPQ and State personnel cooperate in the following activities:

Contacting Mobile Home or Mobile Office Haulers

All mobile home or mobile office haulers who move mobile homes from quarantine areas to noninfested areas are contacted and placed under CA. Entities moving mobile homes, mobile offices, or other mobile structures, if **not** under CA, must contact State or Federal officials prior to the move to make arrangements for inspection and disinfestation (if needed) prior to the move. Establishments routinely involved in such movement may be placed under CA.

Under the terms of the CAs, the CA holder **only** moves mobile homes or mobile offices from a quarantine area to noninfested areas after spongy moth inspections have been performed and documented. Under the CAs, the CA holder knows how to complete the inspections and how to handle the certifying documents.

Contacting the State Department of Transportation

In some States, permits are required to move a mobile home or mobile office or mobile office. Contact with the State transportation office allows access to copies of the permits facilitating making arrangements for inspections.

Contacting Operators of Mobile Home Parks or Mobile Office Dealers

Contacting the operators of mobile home parks and dealers can allow access to mobile homeowners. Park operators or dealers can inform departing customers of the need for inspections and the inspection options available.

Contacting Pesticide Applicators

Contacting individual pesticide applicators and organizations for pesticide applicators allows access to pesticide applicators who are interested in becoming qualified certified applicators (QCAs). QCAs are pesticide applicators who are allowed to inspect mobile homes or mobile offices under CAs.

Preinspection Procedure

Step 1: Before the move, contact the departing mobile home or mobile office owner

- Explain the threat posed by spongy moth and the need to inspect departing mobile homes or mobile offices. Arrange the inspection. Before the inspection, ask the owner of the mobile home or mobile office or mobile office to:
- Ensure the exteriors of the mobile home or mobile office and all associated items are accessible for inspection
- Ensure the interior of the mobile home or mobile office is available for inspection, if necessary
- Provide equipment and labor to ensure rapid access to wheel wells, brakes, undersides, and other inaccessible places on the day of inspection
- Remove all skirting

Step 2: Assemble all necessary tools and equipment

- Binoculars to examine suspected, distant egg masses
- Federal Certificates (Form 540)
- Flashlight, preferably a small, high-intensity flashlight to illuminate crevices and other concealed areas
- Ground cover to lie on when examining the undersides of the mobile homes
- Hand mirror, preferably small and plastic-covered for safety to examine the undersides of the mobile homes
- Ladder to examine the roof and areas under the eaves
- Paint scraper (putty knife), preferably small and flexible to scrape off egg masses
- Probe, preferably thin and flexible, possibly a screwdriver to probe crevices and other concealed areas
- Tools, such as Phillips head and standard screwdrivers to remove panels, if necessary

- Wire brush (if a paint scraper is not used) to scrape off egg masses
- Work clothes, such as coveralls, hardhat, and safety glasses

Inspection Conditions

Inspections require:

- During blow-in and egg-laying seasons (between April and August), if possible, the inspection **must** occur on moving day; if **not** possible, the inspection must occur **no more than** 5 days prior to the move
- Mobile home or mobile office and associated items **must** be accessible to the inspector
- Weather conditions **must** be favorable

Safety and Inspections

To prevent injury when performing inspections:

- Always check for venomous spiders or other wildlife that may pose a threat (snakes, stinging insects, etc.)
- Always put blocks under the wheels of the mobile home or mobile office
- Always wear coveralls
- Always wear a hardhat, gloves, and safety glasses
- Beware of sharp edges, particularly flashing and siding edges. **Never** run your hand over edges that could be sharp
- **Never** crawl under a mobile home or mobile office on jacks
- Use a flashlight to illuminate a dark area before entering
- Use mirrors, instead of entering tight corners

Inspection Procedure

Step 1: Examine the vegetation around the mobile home or mobile office for spongy moth life stages

If the vegetation in the surrounding area is infested, the mobile home or mobile office is likely also infested. However, even when there is no indication of a spongy moth population in the surrounding area, mobile home or mobile office infestation is still possible, therefore, all inspections must be exacting and complete.

Step 2: Examine the mobile home or mobile office and associated items for spongy moth life stages

Look in, on, and under **everything**. The examination **must** cover all exterior surfaces, including surfaces deep within crevices and other concealed areas. Use probes and flashlights to examine all concealed areas.

Examine lower surfaces very carefully. Egg-laying spongy moth females favor shelter under surfaces. Examine the underside of a mobile home or mobile office by crawling on a drop cloth, using a hand mirror, and/or probing with a screwdriver. Inspect with particular care:

- Air conditioners (remove covers)
- Awnings (open if necessary)
- Blocks on which the mobile home or mobile office rest
- Chimney flashing and rain guard
- Compressors
- Drainpipes
- Slide out expansion unit (open if necessary)
- Flashings
- Fuse boxes, circuit breaker box, and/or electrical connections (open if necessary)
- Hitch, including the underside of the I-beams and junctions
- License plate (remove if necessary)
- Moldings (probe if necessary)
- Mud flaps
- Patio room and any associated OHAs to be moved
- Propane has tanks (including under the gas cap)
- Roof and eaves
- Shutters (remove or probe behind as necessary)
- Skirting
- Steps (including under treads)
- Taillights
- Under of the mobile home, including floorboards, frame and tubing
- Vents
- Wheels, including the inside of the rim and brake drums (if accessible)
- Windows sills (top and bottom)

NOTICE

Commonly overlooked sites for larvae and egg masses on mobile homes include:

- Chimney caps
- Flashing
- Lip of the lower wall
- Wheels, especially the inner sides

When necessary, articles likely to harbor spongy moth **must** be disassembled prior to the inspection. The disassembly can be done by the owner of the mobile home, workers contracted by the owner of the mobile home, or the inspecting QCA.

Step 3: Treat the infestation

Refer to information on Treatments.

Step 4: Document the inspection

Refer to the information on Documentation for Mobile Home or Mobile Office Inspections.

Treatments

- Physically removing egg masses
    - Using a wire brush or paint scraper, remove an egg mass. Brush or scrape vigorously to remove all of the egg mass; however, **do not** brush or scrape so vigorously the finish is damaged.
- Treating and physically removing egg masses
    - If you **cannot** be certain scraping will remove 100% of the egg mass, use the following protocol:
        - Apply Golden Pest Spray Oil to an egg mass using a sprayer with an adjustable nozzle, a paint brush or a similar brush. Thoroughly saturate the egg masses to the point of runoff so the egg mass is “soaked.”
        - The Golden Pest Spray Oil rapidly penetrates, destroying even the innermost eggs. Then physically remove the egg mass using a wire brush or paint scraper. Vigorously brush or scrape as much of the egg mass as possible from the surface. **Do not** brush or scrape so vigorously the finish is damaged.
- Spraying larvae with insecticide
    - When larvae are present, use an insecticide labeled for treating spongy moth larvae when removing by brush or paint scraper is **not** practical. Follow insecticide label instructions carefully.

Documentation for Mobile Home or Mobile Office Inspections

To ship mobile homes or mobile offices, two types of documents are acceptable:

- Federal Certificate
    - Issued by PPQ officers or State personnel after the mobile home or office has been inspected and all spongy moth life stages have been removed.
- QCA document
    - Issued by a QCA operating under a CA (refer to Qualified Certified Applicator Document) after the mobile home has been inspected and **all** spongy moth life stages have been treated and removed.

Chapter

4

Slow the Spread Action/ Transition Area Activities

Contents

Introduction

The Slow the Spread (STS) Action/Transition Area occupies a band starting at approximately the outer edge of the quarantine area and extends outward 100 kilometers to the noninfested area. The quarantine area is characterized by a virtually continuous spongy moth population that can periodically reach outbreak levels. The noninfested area lacks an established spongy moth population. Spongy moth populations in the STS Action/Transition Area are usually low level, discontinuous populations that do **not** typically reach outbreak levels.

Significance and History of the Slow the Spread Foundation and Action Area

The STS Foundation is a nonprofit organization whose membership consists of those States along the leading edge of the spongy moth quarantine area. The purpose of the STS Foundation is to conduct activities designed to slow the natural spread of spongy moth out of the quarantine

area in order to protect outlying areas from damage caused by the pest. This mission is accomplished through intensive survey activities, along with regulatory activities, eradication treatments, and population suppression treatments. These activities have resulted in more than a 60% reduction of natural spread rates from an average of 13 miles a year to an average of less than 5 miles a year.

The U.S. Forest Service (FS) provides 75% of the funding for the STS Foundation and its activities. The remaining funds are provided by member states, along with an APHIS grant for regulatory activities within the STS Action/Transition Area.

Slow the Spread Action/Transition Area Regulatory Activities

To prevent the long-distance spread of spongy moth, APHIS policy is to prevent the establishment of isolated, outlying infestations. Usually, isolated infestations result from human-assisted dispersal of the pest through the moving infested articles. Articles likely to be infested are considered Regulated Articles. To prevent human-assisted spongy moth spread, APHIS and State program partners enforce quarantines on regulated articles when they are moved from the quarantine area to noninfested areas. Because logs and many other regulated articles tend to move fairly short distances from the quarantine area into the STS Action/Transition Area, regulatory activities within the STS Action/Transition Area are a vital component of the STS effort. These regulatory activities may include:

- Entering into compliance agreements (CAs) with regulated establishments
- Issuing Federal Certificates for moving regulated articles that have been fully mitigated
- Monitoring spongy moth population levels at and near facilities receiving logs from the quarantine area
- Inspecting nursery stock and other products to ensure pest freedom prior to movement
- Conducting special operations, like weigh station blitzes

Nurseries and Christmas Tree Plantations

Nursery stock and plant products are a high-risk pathway for moving spongy moth. Because spongy moth populations may exist at low levels in the STS Action/Transition Area, nurseries in the STS Action/Transition Area, particularly those dealing in preferred hosts, **must** be inspected often enough to ensure infested material is **not** being shipped.

In addition to a visual examination of plant products and the growing plants, trapping should be done in the vicinity of the nursery to detect spongy moth. For a more detailed description of how to inspect nurseries and Christmas tree plantations in the STS Action/Transition Area, refer to Inspecting Nurseries and Christmas Tree Plantations. Conducted trapping activities in coordination with the STS program and other relevant program partners to assure proper trapping densities and to avoid duplication of effort.

Mills and Log Yards

Mills and other facilities within the STS Action/Transition Area often receive logs originating within the quarantine area. These mills and facilities **must** operate under CAs.

In addition, set two or more traps at each mill receiving logs from within the quarantine area, while also setting traps in the vicinity of the mills per normal STS Action/Transition Area protocols. These traps are intended to monitor spongy moth population levels at the receiving mill in accordance with APHIS policy for regulating receiving mills (refer to Protocols for Regulated Logs Originating in the Spongy Moth Quarantine Area. For additional information about regulatory activities at mills, please refer to the appropriate section(s) of the Regulatory chapter.

Criteria for Adding Areas to the Quarantine

The decision to add an area to the quarantine is based on the detection of a sufficient number of male moths and/or other life stages supporting a State and Federal consensus the area is generally infested.

Trap Survey Results (Male Moths Alone)

When **more than** 10 male moths are caught in the majority of traps placed throughout the area for 2 consecutive years, consider adding the infested area to the quarantine area. Milk carton traps are frequently used for STS/transition area survey work due to its much larger capacity compared to a delta trap.

Trap Survey and Other Survey Results

When adult trapping captures multiple male moths and other survey methods detect alternate life stages, consider adding the infested area to the quarantine area.

Egg Mass Survey Results

When multiple egg masses are detected as the result of an egg mass survey, consider adding the area to the quarantine area.

Updating the Quarantine

After the decision to add an area to the quarantine has been reached, the APHIS Spongy Moth National Policy Manager will work with appropriate personnel to add the area to the Federal quarantine following existing protocols.

Chapter 5

Public Outreach

Contents

Introduction

The United States Department of Agriculture-Animal and Plant Health Inspection Service-Plant Protection and Quarantine (USDA-APHIS-PPQ) is involved in the Spongy Moth Program to:

- Detect isolated infestations at low population levels
- Eradicate isolated infestations on State and private lands
- Prevent the human-assisted spongy moth spread to noninfested areas

The original spongy moth regulations were first published in 1912 during the tenure of Agriculture Secretary James Wilson. Over a century later, the regulations continue to help safeguard trees and forests from this devastating pest.

Outreach is fundamental to the core activities of the Spongy Moth Program, providing an essential and unifying thread across the survey, regulatory, and control actions. Wide sweeping and broad spongy moth outreach can be big and bold or small and subtle, but **all** communication facilitates:

- Increased awareness of the pest and the spongy moth program
- Enhanced understanding of the pest and spongy moth program
- Public and stakeholder support for the spongy moth program
- Compliance with spongy moth regulations and quarantine requirements

While survey, regulatory, and control may be designated as the responsibility of a select few, outreach is a universal job function. We all play a role in the spongy moth outreach mission.

Spongy moth key messages align program partners and support delivering accurate and consistent messages to stakeholders, regulated industries, and the public.

Background

The spongy moth is native to Europe and first arrived in the United States in Massachusetts in 1869.

- Spongy moth is one of the most destructive pests of trees and shrubs to ever be introduced into the United States. Spongy moth caterpillars have voracious appetites for more than 300 species of trees and shrubs, posing a danger to North America’s forests.
- The first Federal spongy moth quarantines were enacted in 1912 in New England and today, nearly half of the lower 48 States in the east are partially or entirely quarantined for the pest.
- Spongy moth can spread on its own and when people unknowingly move an adult moth, larva, or egg mass. Due to our mobile society, the majority of new spongy moth infestations are associated with moving outdoor household articles (OHAs) by the public.
- Spongy moth caterpillars defoliate trees, leaving trees vulnerable to diseases and other pests that can eventually kill the tree. Early detection is critical to limiting spongy moth spread.
- Spongy moth **prefers** approximately 150 primary hosts but will feed on more than 300 species of tree and shrubs.

The Pest

- Spongy moth egg masses are covered with buff or yellowish hair from the abdomen of the female and average about 1½” long and about ¾” wide.

- Newly hatched spongy moth caterpillars are black and hairy. As they mature, caterpillars develop a mottled yellow to gray pattern with tufts of bristle-like hairs and a pattern of five pairs of blue dots and six pairs of red dots along their back.
- Male and female adult moths look very different; a male moth is about ¾" long, brown in color with a darker brown pattern on their wings. Females are larger and nearly white with dark saw-toothed patterns on their wings. Female spongy moth **cannot** fly.
- When spongy moth population density reaches high levels, the caterpillars consume large quantities of foliage resulting in partial or complete forest defoliation.
- Spongy moth prefers approximately 150 primary hosts including aspen, birch, cedar, cottonwood, larch, oak, poplar, willow, and fruit trees.

Survey

- Two USDA agencies, APHIS and the U.S. Forest Service (FS), partner with various State agencies to conduct spongy moth surveys.
- APHIS is responsible for surveying in areas **not** known to be infested to detect new spongy moth infestations. To monitor the pest population and initiate control efforts, the FS concentrates its spongy moth efforts along the front line of the known infested areas.
- The goal of surveying is to find new spongy moth infestations early, before populations can establish, grow, and spread. Public cooperation in surveys is vitally important to ensure a full and complete survey.
- Spongy moth traps are green, orange, or brown and are made of plastic-coated cardboard. The "delta" trap looks like a miniature pup tent with openings on each end (Figure 2-2). The other version of the trap is taller and larger, looks like a milk carton, and is named the "milk carton" trap. Milk carton traps are **not** used in APHIS-funded survey work.
- Traps are baited with a lure to attract the male moth. Once the male moth enters a trap, it is either caught in the sticky lining (delta trap) or killed by a small, insecticidal strip (milk carton).
- The spongy moth traps pose **no** risk to people, pets, or wildlife.

Regulatory

- USDA regulates the movement of potentially infested material or articles from spongy moth quarantine areas to other areas of the United States (refer to the spongy moth quarantine map).
- Spongy moth-regulated articles include:
    - Christmas trees
    - Logs
    - Posts
    - Pulpwood
    - Bark and bark products
    - Nursery stock

  - Mobile homes
  - OHAs such as lawn furniture, yard equipment, and outdoor toys

- To help prevent the further spread of spongy moth, USDA requires homeowners to inspect OHAs and remove any adult spongy moth, pupae, larvae, or egg masses they find prior to moving from a quarantine area to a noninfested area.
- Public and industry compliance with the spongy moth regulations is based on:
  - Awareness of the existence of the regulations
  - Knowledge about the contents of the regulations
  - Cooperation with the regulations.

Control

- The USDA continues to fight spongy moth spread. Today, through the Slow the Spread (STS) Program, USDA is slowing the spread along the infestation's leading edge and eradicating outbreaks outside currently infested areas.
- The Spongy Moth Program uses several strategies and tools to control the pest.
  - Mass trapping strategically places pheromone spongy moth traps (to attract male moths) in a dense grid pattern across the treatment area. The objective of mass trapping is to capture male spongy moths before they have a chance to locate and mate with the flightless female moths. The objective of mating disruption is to saturate the treatment area with enough pheromone sources to confuse the male moths and thereby prevent them from finding and mating with female moths. This can be accomplished by either ground or aerial application of the pheromone Disparlure.
  - Bacillus thuringiensis kurstaki (Btk) is a biopesticide (natural product) used to target spongy moth larvae. The word biopesticide is a combination of the words "biological and pesticide." In most cases, Btk is aerially applied, however in small spongy moth infestations (**less than 5** acres), Btk may be applied using ground equipment. When spongy moth larvae eat vegetation treated with Btk, a toxin is released in their stomachs. This toxin eventually starves or poisons the larvae.
  - Gypchek, a spongy moth nucleopolyhedrosis virus (NPV) product, is also used to target larvae. NPV is applied with aerial or ground application equipment. Spongy moth larvae eat the virus-coated leaves and become infected. These larvae die and decompose leaving virus particles for additional larvae to eat and also become infected. Gypchek infects and kills **only** spongy moth larvae. This product is used in areas where other moths and butterflies may be rare or endangered.
  - There are also a number of traditional pesticides labeled for spongy moth and are occasionally used for control.

What the Public Can Do

- Know the quarantines in your area and learn to leave spongy moth and other pests behind, especially if you're relocating to a new area (refer to the self-inspection checklist).
- If you live outside of a spongy moth quarantine area, report findings of spongy moth egg masses and other life stages on trees, lawn furniture, fences, walls, or elsewhere to Federal or State agriculture officials.
- Become familiar with and cooperate with all restrictions imposed because of a spongy moth detection.
- Allow authorized agricultural workers access to property to install and inspect spongy moth monitoring traps.

General Outreach Activities and Initiatives

- Refer to online Agency resources via Legislative and Public Affairs (LPA) (HungryPests.com, Facebook and Twitter) to facilitate communication and to provide access to current/breaking information regarding survey, detection, quarantine areas, etc.
- Develop and staff a toll-free spongy moth hotline to address State-specific regulations and messages.
- Identify and distribute informational spongy moth materials to prevent duplication of effort and ensure message consistency.
- Keep the media informed regarding program activities, reference single program point-of-contact, and online resources.
- Keep local officials, local government, community leaders, tribal leaders, etc. informed about the program and solicit their participation in advancing program messages.
- Periodically meet with program staff for feedback to identify problems, concerns, etc. Engage and encourage open dialogue.
- Request/create specialized communication vehicles if needed and order (or print) available USDA-provided items.
- If needed, develop and arrange for news releases to mainstream, electronic, and alternative media.
- Spongy moth program materials are available free of charge to support outreach and education.

Public Meetings or Informational Open Houses

Public meetings or informational open houses take place when necessary and/ or appropriate. These meetings address public concerns, communicate the program strategy and actions, and help to garner community support and compliance. Program personnel work collectively to coordinate scheduling, secure suitable facilities, ensure delivery of adequate notification, and provide collateral materials (handouts, fact sheets, informational posters, etc.) for the meeting.

- Craft plain language letters or announcements regarding time, date, location, and purpose of public meeting
- If mailing, use tax rolls for names and addresses (**Note**: tax rolls apply to owners, not necessarily residents)
- Use online communication
- Allow adequate lead time between the announcement and event
- In resort areas, allow for absentee homeowner issues
- Adhere to schedule; start on time/end on time
- Keep presentation short and simple; allow ample time for Q & A

Public venues may include additional participation from:

- Political representatives and community leaders familiar with local concerns and recognized by the local community
- State and Federal program representatives who can respond to questions about spongy moth, surveys, quarantine restrictions, and control measures
- Representatives from cooperating State universities who can answer questions about spongy moth biology, its host range, and potential U.S. impact
- County, city, and local cooperators who can respond to questions about their roles

Media Relations

Notify the APHIS-PPQ and LPA staff regarding Spongy Moth Program initiatives (survey, quarantine, control). Coordinate national media calls (from high-profile media outlets) with APHIS-LPA. To avoid conflicting and confusing statements, process all outgoing information through a single designated spokesperson. It is recommended that one primary media spokesperson be designated by the State cooperator to work with the spongy moth LPA spokesperson. Spokespersons should thoroughly understand all aspects of the program, such as survey, regulatory, and management activities.

Regulated Industries

Spongy moth is one of the most destructive pests of trees and shrubs in the United States impacting trade and commerce across several industries. Affected industries include:

- Christmas tree industry
- Forest products industry
- Moving industry
- Nursery and landscape industry

Outreach Opportunities and Suggestions

Quarantine Areas

- Create a spongy moth communication kit and/or presentation for use or lending
- Include one key message at the bottom of your email signature line – replace monthly
- Increase awareness about communication tools on the HungryPests.com site—reach out to teachers, camp counselors, home school organizations, scout leaders, after-school program leaders, etc.
- Leverage notable national recognitions or celebrations such as Earth Day, Arbor Day, Tree Check Month, etc. to engage target audiences

Nonquarantine Areas

- Ask recreational areas and tourist destinations to include a spongy moth alert on their website
- Contact local business' human resource departments to solicit their support in educating newly hired employees, relocating to the area, about spongy moth
- Partner with municipal public works departments to educate them about spongy moth and other invasive forest pests
- Solicit real estate agencies to include links to online spongy moth resources on their websites and provide key messages to their staff

Spongy Moth Program Publications

APHIS Spongy Moth Information website

Factsheet/Checklist: It's the Law: Before Moving, Check for the Spongy Moth

Chapter 6

Eradication Treatments

Contents

Purpose

The purpose of APHIS's eradication activities is to prevent spongy moth establishment in a pest-free area. Eradicating isolated, outlying spongy moth populations is critical in containing and mitigating human-assisted spread of and damage caused by the pest. Eradication is the complete extermination of a pest population. USDA policy is to detect and eradicate spongy moth populations found outside the generally infested area and the Slow the Spread (STS) action area.

Other types of pest population control activities occur as part of the overall State/Federal strategy to address spongy moth in the United States. Within the generally infested area and the STS action area, treatments are applied with the objective of suppressing or reducing, **but not** eliminating, spongy moth population levels.

In keeping with the 1990 USDA Departmental Policy 5600-01 and the 2009 Interagency Gypsy Moth Memorandum of Understanding between APHIS and the USDA Forest Service (Forest Service Agreement No. 09-SU-11132546-079, APHIS will cooperatively fund eradicating isolated infestations if the isolated infestations are:

- 640 acres **or smaller**
- On non-Federal land, and
- **Not** adjacent to Federal lands.

Suppression efforts in the infested areas where eradication is no longer feasible are the responsibility of the USDA–FS and individual States. APHIS does **not** fund efforts to control spongy moth by suppression.

Evaluating the Need for Eradication Treatment

Review Season's Trapping Data

At the end of each spongy moth survey season, review trap data to identify sites where spongy moth was detected. Sites with multiple catches in a single trap or traps with spongy moth catches near one another are sites requiring particular attention. Such sites may indicate reproducing populations, and the site should be revisited to search for further evidence of a reproducing population. Additional evidence of a reproducing population may include the presence of nonadult life stages, or the results of delimiting surveys as referenced in the survey chapter. Nonadult life stages are typically confirmed through the discovery of one or more egg masses or a pupal exuvia (aka "pupal cases"). If evidence of a reproducing population is found, propose to label the site as an eradication site. A proposal based on repeated trap catches will usually be predicated on how many moths are caught over multiple seasons and how close together (geographically) the catches are.

When the initial internal discussions result in a decision to pursue conducting an eradication treatment, national Spongy Moth Program management **must** be informed and consulted.

Internal Staff Discussions

In addition to the review of trap data, formulating an eradication proposal should include internal discussions by the lead agency. The lead agency is the agency responsible for carrying out the eradication treatment. Initial internal discussions should include all relevant factors including, **but not limited to**, topography of the proposed treatment site, land use patterns in the area, population density (rural, urban, etc.), and relevant social, political, and demographic factors. This initial assessment should be based on the best information available.

The initial internal discussions should also consider factors determining whether proposed eradication treatments would be applied aerially or from the ground. Important factors to consider include, **but may not be limited to**:

- Availability of equipment and personnel properly trained in its use (whether in-house or through contractors)
- Number and types of potential safety hazards (e.g., radio transmission towers or low-hanging power lines)
- Public perceptions and acceptance of different treatment methods
- Relative costs involved
- Size of the proposed treatment block
- Type of terrain within the block

Outreach needs should also be discussed. During preliminary outreach discussions, consider all the factors mentioned above and any additional concerns that would need to be addressed, such as any non-English-speaking demographic groups in the area.

Cooperator Involvement

Cooperators are the entities necessary for planning and executing an eradication treatment. Cooperators are **not** always State, Federal, or Tribal government agencies. Cooperator roles may include developing budgets and securing funding, conducting environmental reviews, assisting with outreach, ensuring compliance with regulatory requirements, and performing treatment operations. Relationships with some cooperators may already exist, however, it is likely that new cooperators will need to be identified and engaged as well. Some examples of other cooperator partnerships are Tribes that may be affected by the treatment, public agencies owning land within the treatment area, and organizations positioned to conduct outreach to unique demographic groups (e.g., homeless and foreign-language populations). If pesticide use is anticipated, engaging State and/or local health agencies is vital.

Mapping

Accurate maps are required to properly plan and conduct an eradication treatment. Needed maps will include:

- Locations of adult moths and other life stages detected
- Locations of concern such as schools, health care facilities, and environmentally sensitive areas
- Locations of safety hazards for treatment applicators
- Proposed and, when decided, actual treatment boundaries

Geographic information system (GIS) technologies can also be used to provide other types of information such as interactive maps allowing an individual to enter their address to determine if their property is within a treatment area.

External Plan Review

Once the workplan for an eradication treatment has been drafted, having that plan reviewed by an external group of people familiar with spongy moth eradication activities may be beneficial. This external review may not be formal or a matter of record, however, this review process can provide suggestions for plan improvements, be used to bolster public support and acceptance of the plan and assist in defending any possible legal challenges.

Preliminary Proposal

A preliminary eradication proposal should be ready for announcement by mid-autumn or early winter. This announcement should include a statement of findings (e.g., trapping results), the need for action, a preferred alternative under the spongy moth 1996 Final Environmental Impact Statement FEIS and 2012 Supplemental Environmental Impact Statement (SEIS), a map of the proposed eradication site(s), and likely timing. One should bear in mind that all proposals are preliminary or draft until a decision document such as a Finding of No Significant Impact (FONSI) has been signed.

Outreach and Stakeholder Interaction

Public support for any eradication project is vital. Use outreach as an opportunity to educate, inform, and build trust and cooperation with affected stakeholders.

A well thought out outreach and communication plan is an important component of any eradication project. An inadequate outreach and communication plan may lead to confusion and speculation among stakeholders resulting in a lack of public support and cooperation for the project. Program partners involved in planning and implementing the eradication project should develop and adhere to a set of core messages in order to avoid cross-messaging or confusion. Outreach efforts (refer to Public Outreach) should be an integral part of the spongy moth eradication project and be initiated during the early stages of the planning process.

Federal Financial Assistance

Once a preliminary proposal has been developed, adequate funding for the proposed treatment must be secured. The preliminary proposal can serve as the basis for the development of a workplan and financial plan for the proposed treatment. The workplan and financial plan **must**

detail the need for the project, including how it aligns with USDA strategic goals and priorities. The workplan should also describe the work to be done, the project partners involved, and the expected results and benefits. The financial plan **must** detail the expenses that will be incurred and any State cost-share contributions. Once the workplan and accompanying financial plan have been drafted they should be submitted to the State Plant Health Director (SPHD) for the State in question or, if the treatment block is **larger than** 640 acres, to the appropriate FS official for review and obligation of the corresponding Federal funds. This process often takes several weeks to several months and is contingent on the availability of Federal funds.

Environmental Review

National Environmental Policy Act (NEPA)

All Federally proposed spongy moth eradication activities or those proposed in cooperation with a Federal agency **must** comply with NEPA. NEPA, enacted in 1970, requires Federal agencies to assess the environmental impacts of their proposed actions **prior to** making a final decision on their implementation. APHIS's Spongy Moth Program uses Final and Supplemental Environmental Impact Statements (FEIS and FSEIS) and Environmental Assessments (EA) to meet NEPA requirements.

Final and Supplemental Environmental Impact Statement

In 1995, the USDA issued the FEIS, "Gypsy Moth Management in the United States: a cooperative approach," which describes and evaluates methods of spongy moth control available for use in USDA cooperative eradication programs. In 2012, the USDA issued a FSEIS supplement to the 1995 edition, "Gypsy moth management in the United States: a cooperative approach: final supplemental environmental impact statement." The 2012 FSEIS included the evaluation of additional spongy moth treatments **not** included in the 1995 FEIS.

Environmental Assessment

The EA provides the basic background information necessary for site-specific analysis of the potential environmental effects resulting from the proposed spongy moth eradication project. The EA, sometimes prepared by the State cooperator and other times prepared by APHIS, should include:

- Environmental impacts of the proposed action
- Listing of the agencies and persons consulted
- Need for the proposed eradication
- Treatment alternatives

Preparing the EA must be tiered (linked) to the FEIS and the FSEIS in accordance with the Council on Environmental Quality regulations for implementing the National Environmental Policy Act of 1969 (NEPA) (40 CFR 1502.20 and 40 CFR 1508). Upon completion, the EA copies are made available for public comment by posting notices in local news outlets and copies at libraries and agency websites. A 30-day comment period is typical. For more detailed guidelines on preparing the EA, refer to Environmental Assessment.

Finding of No Significant Impact (FONSI)

After reviewing the completed EA and the public comments, if APHIS determines the proposed actions will not have a significant environmental impact, the agency will issue a FONSI (refer to Finding of No Significant Impact).

Endangered Species Act (ESA) and Section 7

ESA requires all actions proposed by Federal agencies and their cooperators to protect and conserve listed endangered and threatened species. Section 7 of the ESA titled "Interagency Cooperation" directs Federal agencies to consult with the U.S. Fish & Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) for any actions that may affect listed species. The results of the consultation should be included in a section of the EA.

Informal Consultation

During early stages of the eradication treatment planning process, the lead Federal agency or cooperator requests an informal consultation with USFWS and NMFS to determine if any listed species may occur within the proposed treatment area and what effects the proposed actions may have on those species. The request for interagency consultation should begin sometime in November or early December of the year **prior to** the proposed treatments. If, during the consultation, it is determined that the proposed actions are "not likely to affect" listed species, the consultation is concluded, and the proposal is allowed to move forward. A letter of concurrence from USFWS and NMFS is **not** required. However, if it is determined that the proposed treatments "may affect" a listed species, a written biological assessment (BA) or biological evaluation (BE) will be required to help make a final determination on the effects of the proposed actions.

Biological Assessment or Biological Evaluation

A BA or BE is a written analysis documenting the agencies' conclusions on the effects of the proposed treatments. For the purposes of the discussion on spongy moth eradication, the BA and BE will be treated as one. Section 7 requires the BA to make one of three determinations:

- no effect
- may affect, but not likely to adversely affect
- may affect and is likely to adversely affect listed species

If the findings of the BA conclude the proposed actions "may effect, but not likely to adversely affect," a letter of concurrence from USWFS and NMFS to document compliance with Section 7 is required before moving forward with the proposed treatment.

Section 7 Formal Consultation

If the BA concludes the proposed eradication treatment "may affect and is likely to adversely affect" listed species, the proposing agency **must** request a formal consultation with USFW and/or NMFS to determine if the proposed action will jeopardize the continued existence of a listed species. Upon completion of the formal consultation, USFW/NMFS will issue a written opinion.

Clean Water Act

If an eradication site includes "Waters of the United States" (refer to Definition of "Waters of the United States" Under the Clean Water Act (CWA)), programmatic coverage is needed under the National Pollutant Discharge Elimination System (NPDES).

National Pollutant Discharge Elimination System

NPDES states: the NPDES permitting program regulates discharges from pesticide applications consistent with section 402 of the CWA. Point source discharges of biological pesticides and chemical pesticides that leave a residue into waters of the United States are required to comply with NPDES requirements. EPA and the States issue Pesticide General Permits to offer coverage for pesticide operators. Activities **not** eligible for coverage under the Pesticide General Permit may be eligible for coverage under an individual permit.

State-Level Equivalent Laws and Regulations

Eradication treatment project coordinators are responsible for compliance with State-level environmental laws and regulations. For a list of environmental regulatory agencies for U.S. States and territories, refer to Health and Environmental Agencies of U.S. States and Territories.

NOTICE

Failure to comply with the FEIS, FSEIS, NEPA, ESA, CWA, or any other State and Federal regulations may result in an injunction or lawsuit.

Operation Implementation

Safety

At the onset of the proposed eradication project, the project leader must designate a safety officer or take on the role themselves. A safety plan is necessary and can be modeled via online resources if one is already available. Fundamentals of a safety plan include:

- Accident reporting structure
- Locating emergency medical resources
- Preparedness measures linked to preventing accidents

Operational Checklists

With a safety plan as the first checklist item, divide the checklist into before treatment, during treatment, and after treatment sections. The checklist should consider all possible elements of the various resource needs, operational activities, and follow-up actions for the treatment. These elements include, **but are not limited to**:

- After action review
- Comment periods
- Decision documents
- Funding requirements

- Ground/aerial logistics
- Legal
- Outreach
- Permitting requirements
- Regulatory requirements

Legal

Every aspect of a treatment operation may be challenged in court. The project leader should involve their organization's legal representative from the beginning of the process. Bear in mind, public disclosure laws vary across States and all communications may be subject to public disclosure.

Bids for Contracted Treatments

Treatments are usually performed by a third-party contractor. The lead agency must create the contact specifications for the treatment contract and work with their contracting officer to solicit bids. Contract elements should include, **but are not limited to**:

- Application equipment
- Application rates
- Product to be applied
- Size and boundaries of the area to be treated
- Specialized navigational capabilities

The bid solicitation and contracting process can take considerable time and much of it may be outside of the contracting agency's control.

Logistics

Hotels (if needed)

- Identifying:
    - Location(s) for product storage
    - Location(s) for mixing spray solutions and filling application equipment
    - Placing spray cards
    - Positioning field observers and other staff
    - Spill response plans and equipment
- In-field communication plan
- Location of operational headquarters
- Real-time outreach and notification to people requesting spray-day notifications
- Spongy moth phenological modeling to assist with treatment timing
- Using the Incident Command System (ICS) and/or processes, if necessary
- Vehicles
- Weather monitoring to assist with treatment application timing

Security

Ensuring the safety and security of the public and program personnel is critical at every step of the process—from open house/public meeting events to staging areas (airports, helipads), to treatment areas (neighborhood streets) themselves. Private security or deputized law enforcement officers may be used at key areas to protect both program personnel and the public. Local law enforcement should be notified operations are planned before every treatment, whether ground or aerial. The Federal Aviation Association (FAA) should be notified when aerial treatments are planned. Drone aircraft are a potential threat to flight operations and appropriate precautions should be taken.

Other Considerations

Every eradication treatment project is unique and there may be other project elements that also require planning and execution, such as State-level emergency declarations to conduct aerial spraying to Federal permits for flying near bald eagle nests. This may also include budgeting for legal costs for possible legal challenges.

Operations

Some of the planning and preparation steps described above will move into the implementation or operational phase while other steps are still in process. For example, public engagement activities often begin shortly after the determining the need for an eradication treatment and prior to completing the needed environmental documentation. Ultimately, these planning and preparation steps lead to the actual application of the chosen treatment product. Timing of the treatment application(s) is dependent on several factors, primarily the phenology of the insect and the life stage a given treatment product target.

After Action Reviews

To assess what went well and what can be improved upon in the future, operations should be reviewed following each eradication treatment and at the end of the treatment period. After Action Reviews (AAR) typically begin with a brief description of the actions taken or responses being reviewed. It should include the intent of the review and what benefits it can provide in improving future processes and outcomes. AARs can be conducted electronically or in the traditional paper format. An example of an AAR can be found in Appendix K.

Post-Treatment Delimiting

After treatments have been applied it is critical to monitor the success (or failure) of an eradication treatment by setting a delimiting array of traps at and around the treatment site during the year the treatment was applied and for **no fewer than** 2 additional years. Delimiting surveys should continue until three consecutive years with **no** trap catches or other signs of a lingering

infestation remain. Detailed information on planning and conducting delimiting surveys is available in the Survey chapter under Delimiting Survey.

Appendix

A

How to Assemble Traps

Contents

Materials for Assembling Delta Traps

Delta trap

- Disparlure[1] dispenser (string or strip)
- Paper clips
- Stapler
- Staples, wire, hammer, nails, or string for hanging the trap

Procedures for Assembling Delta Traps

Step 1: Staple the lure to the “X” on the nonsticky side

Step 2: Pull the trap open; pull sticky sides away from each other

[1] The spongy moth lures remain active for, **at most**, three years from the date of manufacture (typically identified on each package) and if stored in the freezer.

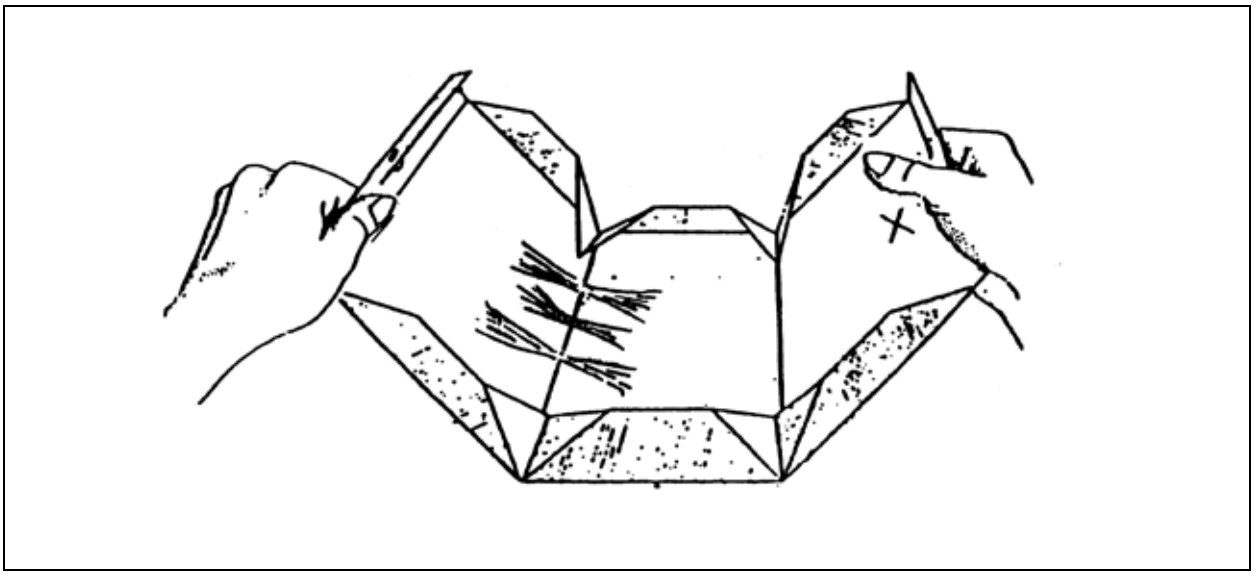


Figure A-1 Example of Step 2 for Assembling Delta Traps

Step 3: Fold the trap into a triangle

Fold top flap over and staple or paper clip together.

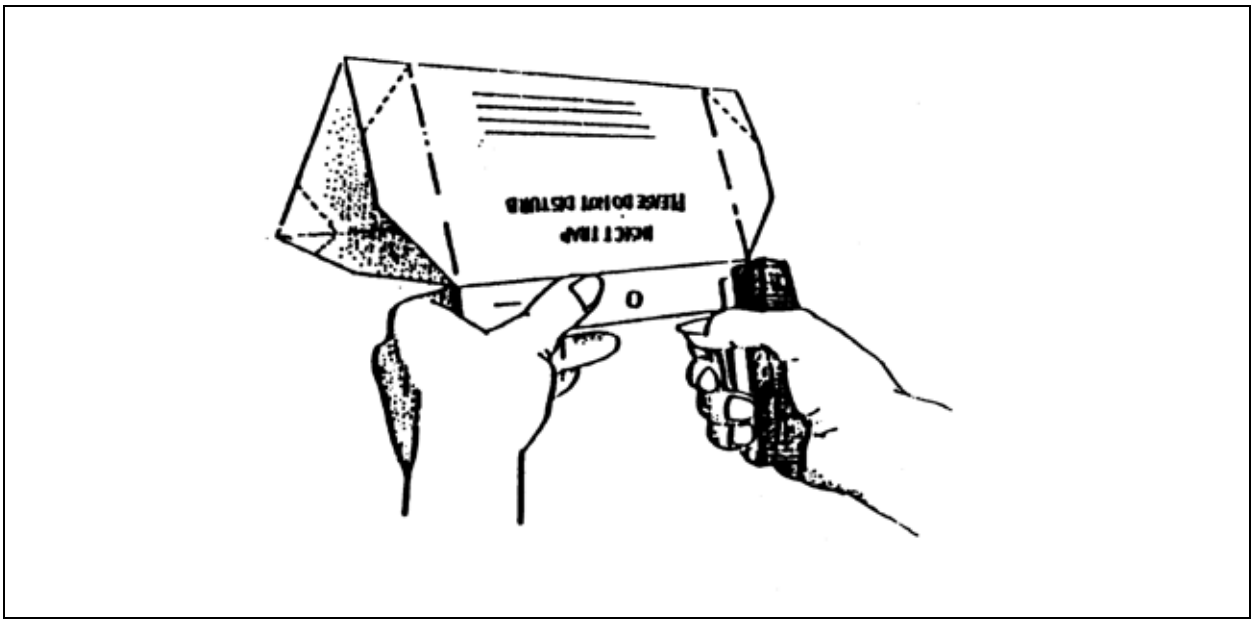


Figure A-2 Example of Step 3 for Assembling Delta Traps

Step 4: Fold in corners at both ends

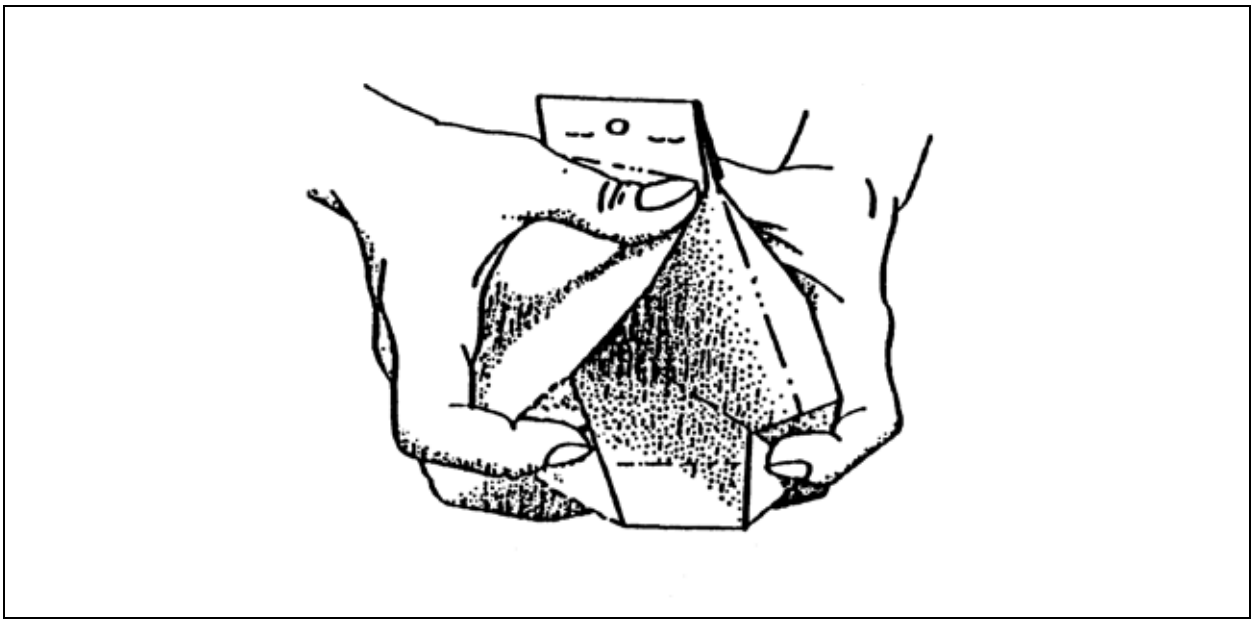


Figure A-3 Example of Step 4 for Assembling Delta Traps

Step 5: Fold in sides at both ends

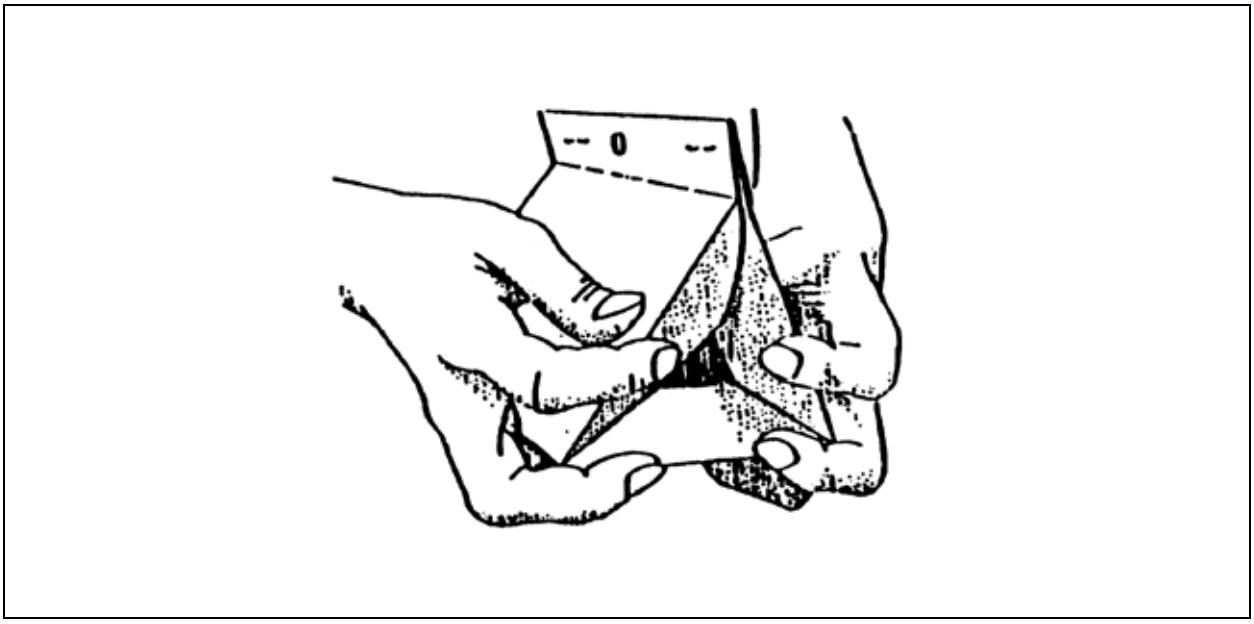


Figure A-4 Example of Step 5 for Assembling Delta Traps

Step 6: Hang or staple trap in place (4 to 5 feet off the ground)

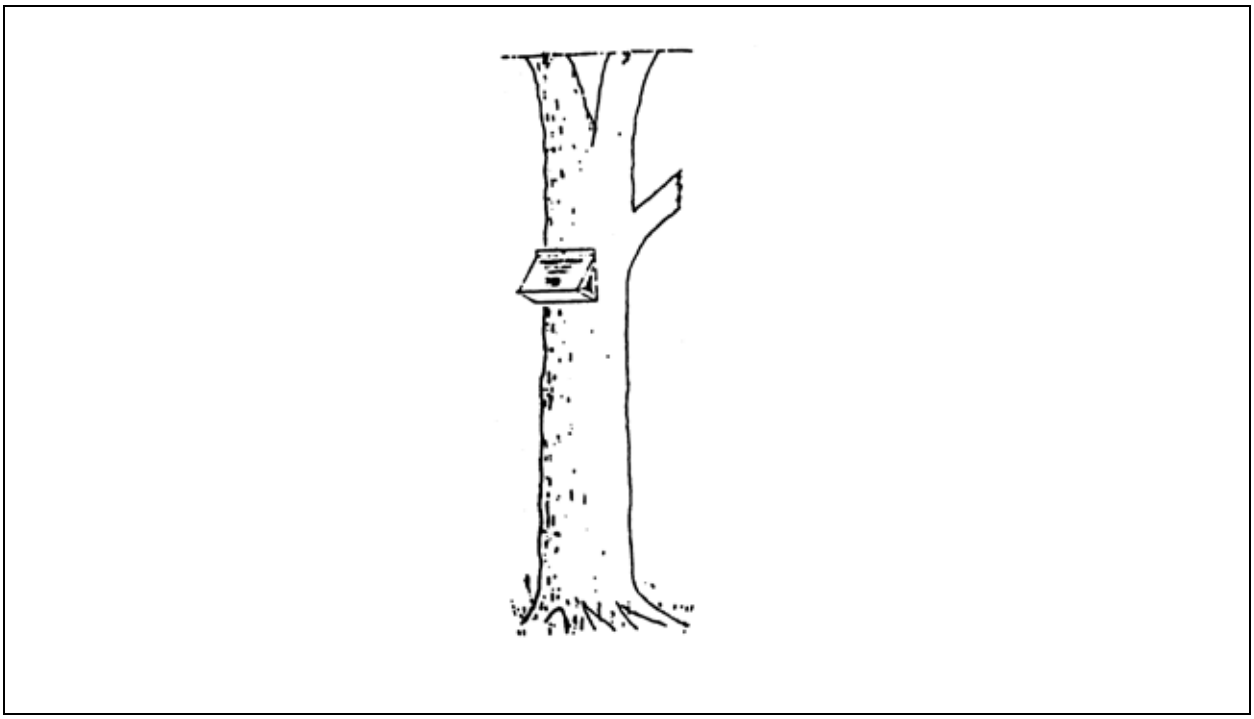


Figure A-5 Example of Step 6 for Assembling Delta Traps

Appendix B

Spongy Moth Data Collection

Contents

Introduction

Program data may be collected using pen and paper or in digital format. Regardless of the equipment and method used to collect data, **all** survey data **must** be entered into the Integrated Plant Health Information System (IPHIS) by December 15 of a given year. Compliance agreements (CA) should also be entered into IPHIS, as described below.

Survey Data, Essential Fields

Table B-1 lists the essential fields that **must** be collected during survey activities and the potential domains that can populate those fields. Other data fields can be collected if useful at the State or local office level.

Table B-1 Survey Activities

Field Name	Description	Domain
Global ID	System-assigned record ID	n/a, system-assigned
Install Date	Date and time of trap installation	n/a, user-assigned
Location Name	Name of general location of one or more traps	n/a, user-assigned
Site Name	Name of specific site for one trap in a location	n/a, user-assigned
Comments	Notes about trap placement or how to access a site (optional)	n/a, user-assigned

Field Name	Description	Domain
Trap Status	Indicates whether trap site is currently in use	· Active · Inactive
Survey Name	Survey name in IPHIS all-in-one templates	· Delimiting · Detection (inland) · Port-Waterway Inside Quarantine · Port-Waterway Outside Quarantine
Target Pest	Pest targeted at this trap site	· FSMC · SM
Survey Category	Survey category as outlined in program guidelines, related to risk and purpose	· SM Category 1 (High Risk) · SM Category 2 (Moderate Risk) · SM Category 3 (Low Risk) · SM Category S (Special Site) · Risk Model Survey Design · SM Visual · FSMC Visual · FSMC Trapping
Treatment	Survey timing in relation to treatment (optional)	· Pretreatment · Post-treatment
Trap Density	Prescribed number of traps per square mile for this site (optional)	· 1/4 sq mi · 1/sq mi · 4/sq mi · 9/sq mi · 16/sq mi · 25/sq mi · 36/sq mi · other
Port Name	If a port environs survey, name of port	n/a, user-assigned
State	State in which site is located	n/a, derived through post-processing
County	County in which site is located	n/a, derived through post-processing
created_user	Account name of user who created record	n/a, system-assigned

Field Name	Description	Domain
created_date	Date and time of record creation	n/a, system-assigned
last_edited_user	Account name of last user to edit record	n/a, system-assigned
last_edited_date	Date and time of last edit	n/a, system-assigned

Table B-2 Survey Activities

Field Name	Description	Domain
Global ID	System-assigned record ID	n/a, system-assigned
TrapGuide	System-assigned foreign key to Trap Sites table	n/a, system-assigned
Activity Date	Date and time of activity	n/a, user-assigned
Activity	Type of activity performed	· MONITOR · REPLACE TRAP · REPLACE TRAP (MISSING) · REMOVE · REMOVE (MISSING) · INACCESSIBLE
Comments	Unusual or special circumstances about this activity (optional)	n/a, user-assigned
created_user	Account name of user who created record	n/a, system-assigned
created_date	Date and time of record creation	n/a, system-assigned
last_edited_user	Account name of last user to edit record	n/a, system-assigned
last_edited_date	Date and time of last edit	n/a, system-assigned

Adding Custom Fields

Because the essential fields above will **not** meet everyone's needs, individual offices may add custom fields.

- Please let your SPHD/Field Operations Spongy Moth Manager know of any added custom fields so it can be evaluated for inclusion in the national system template for future years. If it works for one office, it may be useful for another.
- Keep in mind that adding custom fields can affect reporting. To prevent issues in reviewing data, avoid adding custom fields similar to existing fields. If you need changes to an existing field, let your SPHD/Field Operations Spongy Moth Manager know.

Spongy Moth Regulatory Activities

Enter all spongy moth compliance agreements into IPHIS as soon as possible. The basic agreement is customizable. In addition, record all compliance inspections in IPHIS. Instructions are available in IPHIS Message Forums>Spongy Moth>Spongy Moth Regulatory Data.

Quality Assurance

All offices are expected to review for accuracy the data inputted into IPHIS. This is essential to ensure the data in the system accurately portrays field activities so reports are correct, because these will be used for future program review and planning.

Appendix C

Spongy Moth Molecular Methods and Submission Guidelines

Contents

Submitting Suspected Spongy Moth for Molecular Diagnostics

Submit specimens suspected of being spongy moth, *Lymantria dispar*, to the Plant Protection and Quarantine (PPQ), Science and Technology (S&T), Forest Pest Methods Laboratory (FPML, formerly known as the Otis Pest Survey, Detection, and Exclusion Laboratory) for molecular diagnostics.

All specimens collected **outside** the Federal quarantine or at a port of entry and a subsample of specimens collected **inside** the quarantine are analyzed. Send each trap submitted to the laboratory, regardless of quarantine status, with PPQ Form 391 (refer to Figure C-1).

Alternatively, if sending a large quantity (>10) of specimens, send an Excel file reflecting the fields listed in Figure C-2 to submitting an individual form. Submit forms and tracking information via email.

Submission Deadline

Traps should be submitted **as soon as** collected. Samples collected from **inside** the quarantine are **accepted for analysis until November 30th** of each survey year.

DNA degrades quickly when exposed to ambient conditions, therefore, it is critical for samples to be collected regularly, stored in a freezer, and submitted for diagnostics **as soon as possible**. Otherwise, specimen condition can be negatively impacted leading to diagnostic assay failure and the inability to identify specimens.

Prompt submission is also essential to ensure participating States receive survey results promptly and to ensure no delays in generating the *Lymantria dispar* Risk Model.

Ship specimens via next-day delivery for arrival Tuesday through Friday to:

Forest Pest Methods Laboratory (FPML)
Spongy Moth Diagnostics
1398 W. Truck Rd
Buzzards Bay, MA 02542

Email submission form(s) and shipment tracking information to:

Lymantria.diagnostics@usda.gov

All inquiries regarding spongy moth diagnostics can be directed to the above email.

Specimen Shipment Requirements

Egg Masses

- Permit to move live pests is required in **all** egg mass shipments
- Request permit by emailing group inbox address (listed above)
- Ship individual egg masses separately—**do not** mix egg masses
- **Do not** treat egg masses with oil
- Ship egg masses dry in a sealed secondary container
- For port interceptions, provide the corresponding Agricultural Risk Management System (ARM) diagnostic request form **either** with the shipment **or** via email
- For domestic samples, label each egg mass with the collection number corresponding to PPQ Form 391

Delta Traps

- **Do not** disassemble the traps or remove moths from the trap
- Package traps to avoid crushing during shipment
- Label each trap with the collection number corresponding to PPQ Form 391 or the Excel template

Milk Carton Traps

- Empty milk carton traps into a paper bag—plastic bags retain moisture and promote DNA degradation
- Label paper bag with the collection number corresponding to PPQ Form 391 or the Excel template

Spongy Moth Molecular Diagnostics

Real-Time PCR Spongy Moth Diagnostic Assay

Real-time PCR is an advanced technique monitoring the amplification of a target DNA molecule during the DNA replication process. A probe binds to the target CNA and emits a fluorescence captured by a sensor on the real-time PCR machine. In other words, if the target DNA sequence is present, the sensor will detect more light as more DNA copies are replicated. The high sensitivity of real-time PCR may enable detection of a target organism in the presence of only a few DNA copies. The terms “real-time PCR” and “qPCR” are interchangeable.

Lymantria dispar asiatica, *Lymantria dispar japonica*, and *Lymantria umbrosa* are members of the flighted spongy moth complex (FSMC) and are of regulatory concern and **cannot** reliably be distinguished morphologically from *Lymantria dispar dispar*. Two real-time PCR assays are used to distinguish these four targets on a genetic level:

- Standard Real-Time PCR Spongy Moth Diagnostic Assay
- Its simplified version, Dual-Probe Real-Time PCR Spongy Moth Diagnostic Assay.

Processing Timelines

Upon arrival, specimens will be processed using the priority system in Table C-1.

Table C-1 Priority System for Processing Specimens for Standard Real-Time PCR Spongy Moth Diagnostic Assay

Specimen origin:	Priority:	Estimated Processing Time:
Port interceptions[1]	Urgent	24 hours[2]
Specimens from outside quarantine	Prompt	24 to 72 hours
Specimens from inside quarantine	Routine	Reported at the end of survey season

Standard Real-Time PCR Spongy Mother Diagnostic Assay

The Standard Real-Time PCR Spongy Moth Diagnostic Assay includes four subassays to identify either *Lymantria dispar asiatica*, *Lymantria dispar japonica*, *Lymantria umbrosa*, or

[1] Includes specimens collected on maritime vessels by CBP personnel.

[2] Specimens received Friday cannot be processed until the following Monday.

Lymantria dispar dispar based on differences in their mitochondrial genes. The four subassays are referred to as:

- AGM
- Ldaj
- Lda
- Ldd

The combined results from the four subassays allow identification of the four target moths because each target is characterized by a different amplification plot (refer to Table C-2 and Figure C-3), which summarizes positive (S-shaped curve) and negative (flat line) subassay results. A specimen that does not generate a positive amplification or generates an amplification plot inconsistent with the four targets is either not a spongy moth species or failed to amplify due to DNA degradation.

Table C-2 Diagnostic Results For the Four Subassays Using Standard Real-Time PCR Spongy Moth Diagnostic Assay

AGM	Ldaj	Lda	Ldd	Final Determination
Positive	Positive	Positive	Positive	*Lymantria dispar asiatica*
Positive	Positive	Negative	Positive	*Lymantria dispar japonica*
Positive	Cell Negative	Negative	Positive	*Lymantria umbrosa*
Negative	Positive	Negative	Positive	*Lymantria dispar dispar*

Dual-Probe-Real-Time PCR Spongy Moth Diagnostic Assay

The Standard Real-Time PCR Spongy Moth Diagnostic Assay was optimized to produce a simplified assay, the Dual-Probe Real-Time PCR Spongy Moth Diagnostic Assay, which only includes two subassays (refer to Figure C-4):

- AGM
- Ldd

Unlike the standard version, the dual-probe assay detects *Lymantria dispar asiatica*, *Lymantria dispar japonica*, and *Lymantria umbrosa* from the background of *Lymantria dispar*. It does **not** distinguish between the former three targets. The dual-probe assay is specifically designed for analyzing samples trapped during the domestic survey. Given the rare domestic occurrences of FSMC, the dual-probe assay can screen samples more efficiently than the standard assay. Samples with positive results for the AGM subassay are subsequently analyzed by the Standard Real-Time PCR Spongy Moth Diagnostic Assay for subspecies identification. Samples of regulatory significance (e.g., port interceptions) are directly processed with the standard assay.

Table C-3 Diagnostic Results For the Two Subassays Using Dual-Probe Real-Time PCR Spongy Moth Diagnostic Assay

AGM	Ldd	Final Determination
Positive	Positive	*Lymantria dispar asiatica, Lymantria dispar japonica,* or *Lymantria umbrosa*
Negative	Positive	*Lymantria dispar dispar*

Secondary Analysis of Significant Regulatory Samples

Specimens of regulatory significance that fail the real-time PCR assays can be analyzed using DNA barcoding. Specimens received from **inside** the quarantine that fail the assay will **not** be DNA barcoded, **except** upon direct request. The processing timeline for DNA barcoding is dependent on the turnaround time of the sequencing company but can typically be expected in one to three weeks. If DNA barcoding fails, the specimen may be reextracted and reprocessed, which will take an additional one to three weeks.

DNA Barcoding

DNA barcoding uses the mitochondrial COI gene to distinguish different species. The technique relies on obtaining the unknown specimen's COI sequence and comparing it to sequences of voucher species deposited in the Barcode of Life Data System (BOLD).

Because the Real-Time PCR Spongy Moth Diagnostic Assays detect spongy moth (provided the DNA quality is sufficient), there are three potential DNA barcoding outcomes:

- Species- or genus-level identification of a non-spongy moth specimen.
- Inconclusive identification resulting from the specimen failing to match any known reference DNA barcode.
- Unknown identity due to DNA sequencing failure.

Result Reporting

Results are reported in accordance with the established timelines based on specimen origin and the guidelines detailed below.

Port Interceptions and Specimens of Regulatory Significance

Final determinations based on the Real-Time PCR Spongy Moth Diagnostic Assay are reported to the National Identification Service (NIS) "Urgents" email group. According to the agreed-upon communication protocol, results provided to NIS are copied to the following individuals: State Plant Health Director (SPHD); State Plant Regulatory Official (SPRO); original submitter, Forest Pest Methods Laboratory (FPML) Director; National Policy Manager; and National Operations Manager (NOM). DNA barcoding results are provided by forwarding the original correspondence and listing the final determination based on DNA barcoding in red. Molecular determinations are also updated by a molecular diagnostician in the ARM database (when applicable).

Results Templates

Diagnostic results are reported using the template below:

Lab ID:
Interception # or Collection #:
Life Stage:
Date Collected:
Date Received:
Determination:
Determination Method:
Viability: all egg masses are assumed to be likely viable **unless** the sample consists of **all** empty shells or if there are **no** eggs present in the sample
Attachment: PPQ Form 391 for domestic specimens or associated diagnostic request for port interception specimens.

DNA barcoding results are reported using the template below:

Updated DNA Barcoding Result:
Lab ID:
Interception # or Collection #:
Life Stage:
Date Collected:
Date Received:
Determination:
Determination Method: DNA barcoding
Viability: all egg masses are assumed to be likely viable **unless** the sample consists of **all** empty shells or if there are **no** eggs present in the sample
Attachment: PPQ Form 391 for domestic specimens or associated diagnostic request for port interception specimens.

Specimens Inside the Federal Quarantine

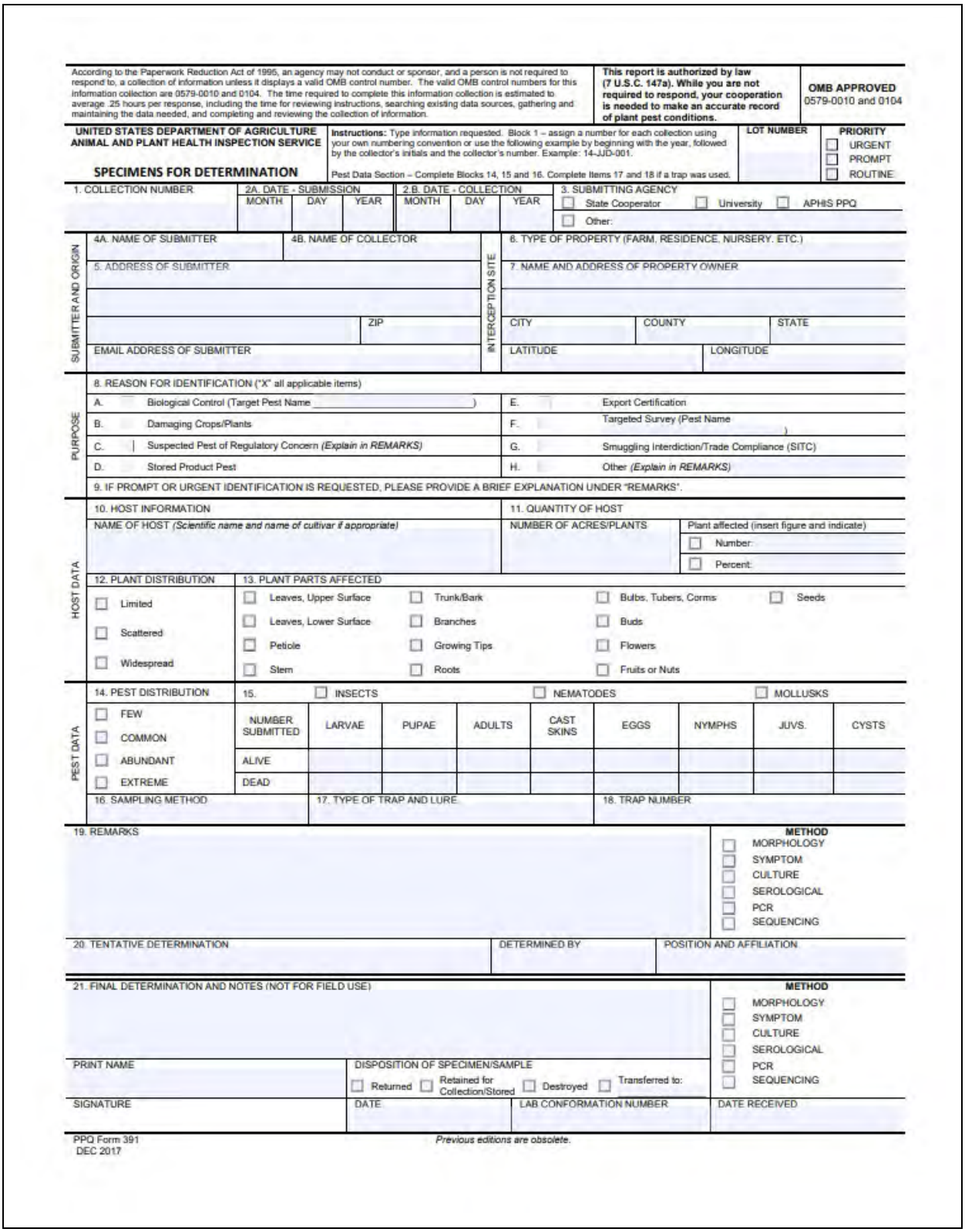
Real-Time Spongy Moth Diagnostic Assay results are reported by State to the SPHD, SPRO, original submitter, FPML director, National Policy Manager, and NOM once all processing of specimens from **inside** the quarantine is completed.

Results are returned in an Excel file and include the following:

- Laboratory ID #
- Collection #
- Date received
- Date collected
- State
- County
- City

- Latitude
- Longitude
- Specimen life stage
- Final determination
- Determination method

PPQ Form 391, Specimens for Determination



According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number. The valid OMB control numbers for this information collection are 0579-0010 and 0104. The time required to complete this information collection is estimated to average .25 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

This report is authorized by law (7 U.S.C. 147a). While you are not required to respond, your cooperation is needed to make an accurate record of plant pest conditions.

OMB APPROVED 0579-0010 and 0104

UNITED STATES DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE

SPECIMENS FOR DETERMINATION

Instructions: Type information requested. Block 1 – assign a number for each collection using your own numbering convention or use the following example by beginning with the year, followed by the collector's initials and the collector's number. Example: 14-JJD-001.

Pest Data Section – Complete Blocks 14, 15 and 16. Complete Items 17 and 18 if a trap was used.

LOT NUMBER

PRIORITY: ☐ URGENT ☐ PROMPT ☐ ROUTINE

1. COLLECTION NUMBER

2A. DATE - SUBMISSION: MONTH | DAY | YEAR

2.B. DATE - COLLECTION: MONTH | DAY | YEAR

3. SUBMITTING AGENCY: ☐ State Cooperator ☐ University ☐ APHIS PPQ ☐ Other:

SUBMITTER AND ORIGIN

4A. NAME OF SUBMITTER

4B. NAME OF COLLECTOR

5. ADDRESS OF SUBMITTER

ZIP

EMAIL ADDRESS OF SUBMITTER

INTERCEPTION SITE

6. TYPE OF PROPERTY (FARM, RESIDENCE, NURSERY, ETC.)

7. NAME AND ADDRESS OF PROPERTY OWNER

CITY | COUNTY | STATE

LATITUDE | LONGITUDE

PURPOSE

8. REASON FOR IDENTIFICATION ("X" all applicable items)

A. ☐ Biological Control (Target Pest Name _____)
B. ☐ Damaging Crops/Plants
C. ☐ Suspected Pest of Regulatory Concern *(Explain in REMARKS)*
D. ☐ Stored Product Pest
E. ☐ Export Certification
F. ☐ Targeted Survey (Pest Name _____)
G. ☐ Smuggling Interdiction/Trade Compliance (SITC)
H. ☐ Other *(Explain in REMARKS)*

9. IF PROMPT OR URGENT IDENTIFICATION IS REQUESTED, PLEASE PROVIDE A BRIEF EXPLANATION UNDER "REMARKS".

HOST DATA

10. HOST INFORMATION
NAME OF HOST *(Scientific name and name of cultivar if appropriate)*

11. QUANTITY OF HOST
NUMBER OF ACRES/PLANTS
Plant affected (insert figure and indicate)
☐ Number:
☐ Percent:

12. PLANT DISTRIBUTION
☐ Limited ☐ Scattered ☐ Widespread

13. PLANT PARTS AFFECTED
☐ Leaves, Upper Surface ☐ Leaves, Lower Surface ☐ Petiole ☐ Stem
☐ Trunk/Bark ☐ Branches ☐ Growing Tips ☐ Roots
☐ Bulbs, Tubers, Corms ☐ Buds ☐ Flowers ☐ Fruits or Nuts
☐ Seeds

PEST DATA

14. PEST DISTRIBUTION
☐ FEW ☐ COMMON ☐ ABUNDANT ☐ EXTREME

15. ☐ INSECTS ☐ NEMATODES ☐ MOLLUSKS

NUMBER SUBMITTED	LARVAE	PUPAE	ADULTS	CAST SKINS	EGGS	NYMPHS	JUVS.	CYSTS
ALIVE								
DEAD								

16. SAMPLING METHOD | 17. TYPE OF TRAP AND LURE | 18. TRAP NUMBER

19. REMARKS

METHOD
☐ MORPHOLOGY ☐ SYMPTOM ☐ CULTURE ☐ SEROLOGICAL ☐ PCR ☐ SEQUENCING

20. TENTATIVE DETERMINATION | DETERMINED BY | POSITION AND AFFILIATION

21. FINAL DETERMINATION AND NOTES (NOT FOR FIELD USE)

METHOD
☐ MORPHOLOGY ☐ SYMPTOM ☐ CULTURE ☐ SEROLOGICAL ☐ PCR ☐ SEQUENCING

PRINT NAME

DISPOSITION OF SPECIMEN/SAMPLE
☐ Returned ☐ Retained for Collection/Stored ☐ Destroyed ☐ Transferred to:

SIGNATURE | DATE | LAB CONFORMATION NUMBER | DATE RECEIVED

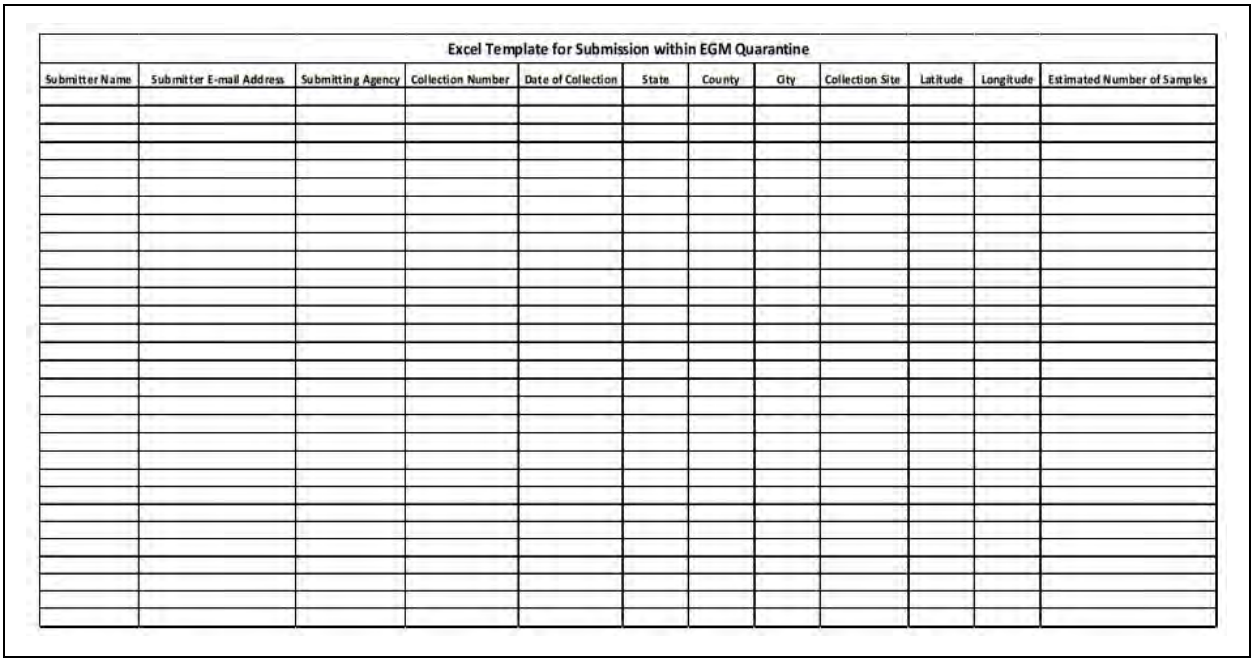
PPQ Form 391
DEC 2017

Previous editions are obsolete.

Figure C-1 Example of PPQ Form 391, Specimens for Determination

Excel Template for Spongy Moth Trap Submission

To request this Excel template, email Lymantria.diagnostics@usda.gov.



Excel Template for Submission within EGM Quarantine

Submitter Name	Submitter E-mail Address	Submitting Agency	Collection Number	Date of Collection	State	County	City	Collection Site	Latitude	Longitude	Estimated Number of Samples

Figure C-2 Excel Template for Spongy Moth Trap Submission

Standard Real-Time PCR Spongy Moth Diagnostic Assay with Target-Specific Amplification Plots

Each target moth is characterized by a different amplification plot that includes positive and negative results from the four subassays. A positive subassay generates an S-shaped curve, whereas a negative result generates a nearly flat line.

NOTICE

A small number of *Lymantria dispar dispar* may produce positive amplification in the Lda subassay.

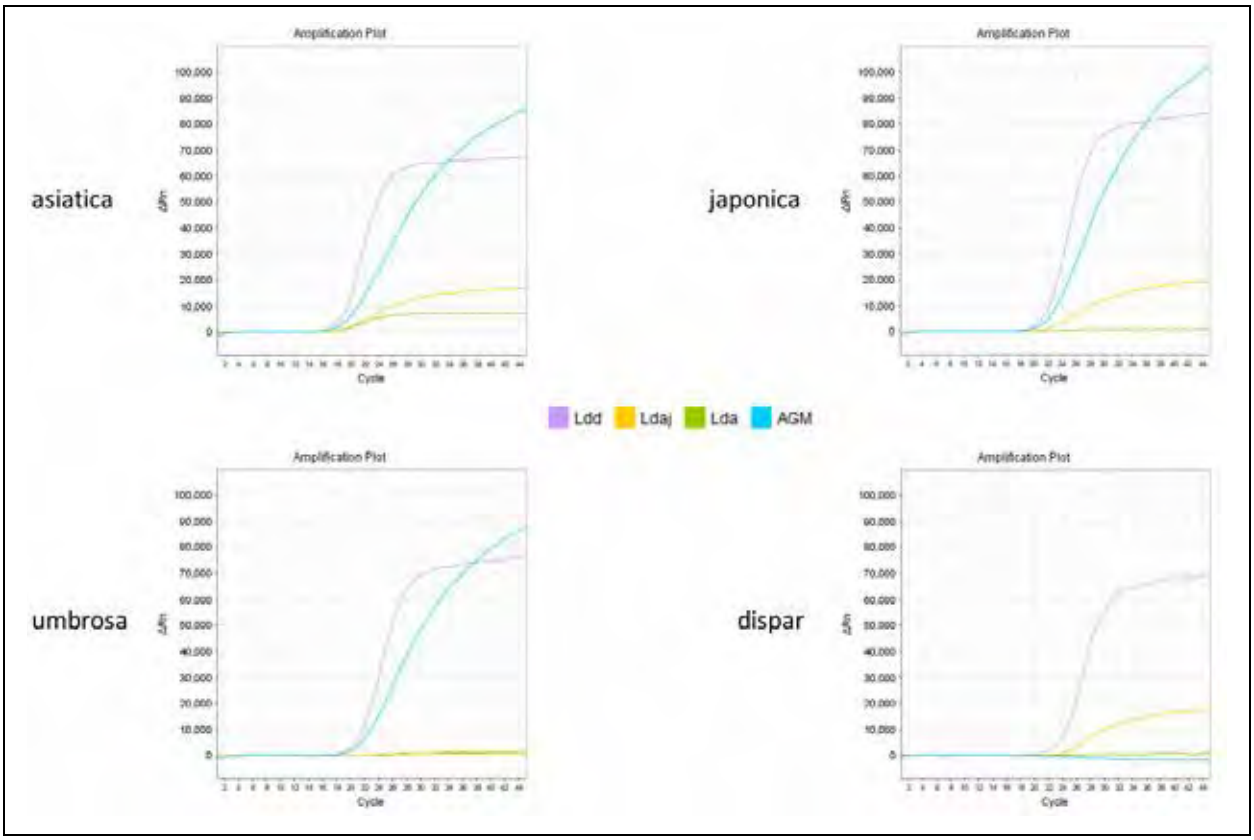


Figure C-3 Standard Real-Time PCR Spongy Moth Diagnostic Assay with Target-Specific Amplification Plots

Dual-Probe Real-Time PCR Spongy Moth Diagnostic Assay with Target-Specific Amplification Plots

Each target moth is characterized by a different amplification plot that includes positive and negative results from the two subassays.

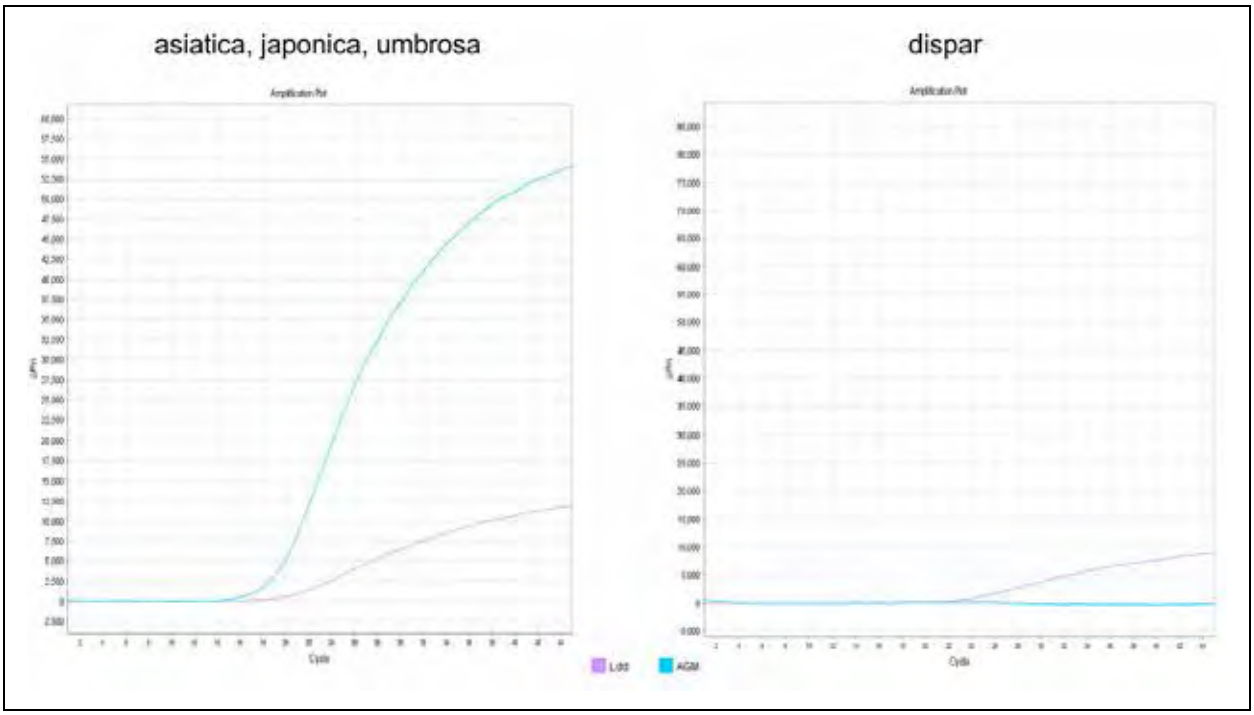


Figure C-4 Dual-Probe Real-Time PCR Spongy Moth Diagnostic Assay with Target-Specific Amplification Plots

Appendix

D

Compliance Agreements

PPQ Form 519, Compliance Agreement

Each Compliance Agreement (CA) is documented on PPQ Form 519—Compliance Agreement (refer to Standard Compliance Agreement Template).

The agreement section on PPQ Form 519 may reference attached information. The attached information may be adapted to meet local conditions.

The Spongy Moth Program uses a standard CA template covering most regulated activities and articles. On those rare occasions when a unique circumstance arises requiring a custom CA, consult program management for guidance and approval.

Standard Compliance Agreement Template

GYPSY MOTH COMPLIANCE AGREEMENT

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control numbers for this information collection are 0579-0054, 0688, 0129, 0196, 0235, 0257, 0306, 0310. The time required to complete this information collection is estimated to average 1.25 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

FORM APPROVED OMB NUMBER 0579- 0054/0688/0129/0196/ 0235/0257/0306/0310

UNITED STATES DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTIONSERVICE
PLANT PROTECTION ANDQUARANTINE

COMPLIANCE AGREEMENT

1. NAME AND MAILING ADDRESS OF PERSON OR FIRM

Applicant Name
Facility Name
Mailing Address
City, State Zip

2. contact information & physical location: Same (Iowa County)

Contact:
Physical Location:
Phone:
Fax:
Cell:
Email:

3. Regulated Article(s)

Logs, Pulpwood (including bolts, edgings, trimmings, slabs, etc.), Firewood, Decorative Forest Products, Bark and Bark products, Trees without roots (e.g. Christmas trees), trees with roots, and shrubs with roots and persistent woody stems (unless they are greenhouse grown throughout the year) moving from a quarantined area to a non-quarantined area.

4. Applicable Federal Quarantine(s) or Laws/Regulations

7CFR 301.45 Gypsy Moth (*Lymantria dispar*)

5. I/We agree to the following:

This establishment will handle the following regulated article(s): (check all applicable)

__ Veneer Logs
__ Saw Logs
__ Pulpwood
__ Firewood
__ Bark/ Bark Products
__ Decorative Forest Products (e.g. holiday greenery, birch products, etc.)
__ Christmas Trees or Nursery Stock
__ Other (specify) _____

Treatment/ Mitigation (check all applicable)

__ 100% Examination and Removal
__ Transport Safeguards
__ Heat Treatment
__ Kiln Sterilization
__ Composting
__ Hammer milling
__ Debarking
__ Inspection of premises and environs by Federal/State officials
__ Size

6. SIGNATURE	7. TITLE	8. DATE SIGNED

The affixing of the signatures below will validate this agreement which shall remain in effect until canceled, but may be revised as necessary or revoked for noncompliance.

9. AGREEMENT NO.

10. DATE OF AGREEMENT

11. PPQ/CBP OFFICIAL (NAME AND TITLE)	12. ADDRESS
13. SIGNATURE	
14. U.S. GOVERNMENT/STATE AGENCY OFFICIAL (NAME AND TITLE)	15. ADDRESS
16. SIGNATURE	

Page 1 of 4

Figure D-1 Spongy Moth Compliance Agreement (page 1)

Addendum to Gypsy Moth Compliance Agreement

Compliance Agreement #

Compliance Stipulations _____ (initial/date)

1. This establishment will ship regulated material from the federal Gypsy Moth quarantine area ONLY after applicable treatment/mitigations are completed at the establishment's expense. Explanations and schedules are detailed below.
2. Regulated articles that have undergone the approved treatment/mitigation process may be shipped throughout the year (except as noted).
3. This establishment will ensure that each shipment of regulated material moved out of the quarantine area is accompanied by a completed federal Certificate (PPQ Form 540), Limited Permit (PPQ Form 530), or other authorized documentation.
4. This compliance agreement shall remain in effect for one year, but may be revoked for noncompliance.
5. The USDA and/or state Departments of Agriculture retain the right to conduct inspection of regulated articles and monitor inspection and treatment/mitigation procedures.
6. The USDA and/or state Departments of Agriculture retain the right to examine invoices, shipment, movement, treatment, and other relevant records at any time.
7. The Plant Protection Act (July 2000) provides authority to USDA to assess civil penalties for violation of Gypsy Moth quarantine regulations (7CFR 301.45). Penalties may be assessed to a maximum of $50,000 per violation for individuals, and $250,000 per violation of other entities such as organizations and businesses. When a violation is done knowingly, criminal penalties under Title 18 of the United States Code may also be assessed by the Federal District Courts. Criminal penalties may include monetary penalties, imprisonment, or both. Section b.1A of 7U.S. Code Section 7734 specifies the Public Law covering "Penalties for Violation."
8. If the establishment named in block 1 fails to comply with the provisions of this compliance agreement and/or Gypsy Moth quarantine regulation, this compliance Agreement may be canceled.
9. The USDA reserves the right to revise or cancel the compliance agreement at any time.
10. Compliance agreements are non-transferable. The establishment must notify the USDA of any change regarding ownership, location, company name, or processing of material.
11. The establishment agrees to keep its employees informed about the Gypsy Moth quarantine borders and about Gypsy Moth quarantine regulations.
12. The establishment also agrees to instruct its employees in the identification of Gypsy Moth life stages.
13. The establishment agrees to inform USDA APHIS PPQ of any suspected Gypsy Moth infestation occurring outside the established federal quarantine boundaries.
14. The USDA retains the right to conduct inspections of regulated articles, monitor inspection procedures, and examine shipment, treatment and Federal Certificate records at any time.

Use of Electronic Stamp of the Federal Certificate _____ (initial/date)

1. An electronic/imprinted Federal Certificate may be used in lieu of PPQ Form 540 or PPQ Form 527. This file or printout will be provided by USDA APHIS PPQ for use by the establishment.
2. The size of the shield may be modified for use on packaging/forms, but must remain large enough to be legible.
3. A copy or imprint utilizing the shield must be provided to PPQ for approval prior to use.

Record Keeping _____ (initial/date)

1. The establishment will ensure that each shipment of regulated material moved interstate is accompanied by the appropriate completed form (Certificate, Limited Permit, Accurate Statement, etc).
2. This establishment will insure that all federal Certificates, Limited Permits, and other approved forms are safeguarded from misuse, unauthorized use, and loss.
3. Certificates (PPQ Form 540) and Limited Permits (PPQ 530) may not be duplicated without the approval of USDA APHIS PPQ.
4. All federal Certificates (PPQ Form 540) and Limited Permits (PPQ Form 530) must be accounted for, including voids.
5. All records must be maintained for 36 months.
6. All document requests will be filled within 48 hours of the initial request.
7. Inspector copies of Federal Certificates, Limited Permits, and other forms must be forwarded to the issuing office once per month or as otherwise directed.
8. The establishment must keep records of materials shipped or received, dates of shipments, quantities shipped or received, and destination or origin.

Figure D-2 Spongy Moth Compliance Agreement Template (page 2)

Addendum to Gypsy Moth Compliance Agreement

Compliance Agreement #

Treatments and Mitigations

1. 100% Examination and Removal _____ (initial/date)
   a. All surfaces and sides will be examined and all life stages of Gypsy Moth will be completely removed and destroyed.
   b. Only regulated articles that are 100% free of Gypsy Moth life stages will be moved out of the Gypsy Moth quarantine area
   c. Log Inspections:
      i. If shipped under a Federal Certificate or an equivalent State-approved form, log inspections must be conducted no more than five days prior to the date of movement during the months of April through August and no more than 14 days prior to the date of movement from September through May.
      ii. If shipped under an Accurate Statement, log inspections must be conducted not more than five days prior to shipping.
      iii. Logs will only be moved to mills authorized by a compliance agreement to receive logs from areas regulated for gypsy moth.
   d. Decorative Forest products
      i. Regulated articles less than ½ inch in diameter are exempt.
   e. Shipments out of the quarantine area must be accompanied by one of the following forms of documentation:
      i. Federal Certificate (PPQ Form 540 or equivalent)
      ii. Accurate Statement
      iii. Equivalent state-approved form

2. Transport Safeguards for Untreated Commodities _____ (initial/date)
   a. Shipments will only be moved to receiving facilities operating under a PPQ compliance agreement for specified handling, utilization, processing, or treatment.
   b. Only shippers operating under PPQ compliance agreement will transport commodities to receiving mills outside the Gypsy Moth quarantine area.
   c. Shipments will leave the Gypsy Moth quarantine area accompanied by the appropriate documentation.
   d. Shipments out of the quarantine area must be accompanied by one of the following forms of documentation:
      i. Limited Permit (PPQ Form 530)
      ii. Accurate Statement
      iii. Equivalent state-approved form

3. Heat Treatment _____ (initial/date)
   a. Regulated articles must be heated to an internal temperature of 132.8°F (56°C) for at least 30 minutes.
   b. Treatment facilities shall maintain records of all treatments conducted.
   c. Other regulated pests may require a more stringent heat treatment standard, in which case the more stringent standard must be applied.
   d. Approved facilities will use appropriate heat treatment protocols to mitigate risks associated with regulated articles.
   e. Shipments out of the quarantine area must be accompanied by one of the following forms of documentation:
      i. Federal Certificate (PPQ Form 540 or equivalent)
      ii. Equivalent state-approved form

4. Kiln Sterilization (T404-b-4) _____ (initial/date)
   a. Kiln Sterilization can be used for lumber up to a Maximum thickness of three inches using the following specifications:

Dry Bulb Temperature (F°)	Wet Bulb Depression (F°)	Relative Humidity (%)	Moisture Content (%)	Thickness of Lumber (inches)	Treatment time after kiln reaches conditions (hours)
140	7	82	13.8	1	3 hrs
				2	5 hrs
				3	7 hrs

Figure D-3 Spongy Moth Compliance Agreement Template (page 3)

130	16	60	9.4	1	10 hrs
				2	12 hrs
				3	14 hrs
125	15	61	9.7	1	46 hrs
				2	48 hrs
				3	50 hrs

b. After kiln sterilization, the wood will be checked with a moisture meter to verify that it is at or below the appropriate moisture meter content listed above. Two readings will be taken per stack of wood:
   i. One near the top of the stack
   ii. One near the bottom of the stack.

   These readings will be recorded along with the date/time and quantity of wood treated. This information will be provided to USDA APHIS PPQ on a monthly basis
c. If the wood does not meet moisture content guidelines, it will NOT be in compliance unless it undergoes additional kiln sterilization and can then demonstrate that the moisture requirement has been met.
d. Shipments out of the quarantine area must be accompanied by one of the following forms of documentation:
   i. Federal Certificate (PPQ Form 540 or equivalent)
   ii. Equivalent state-approved form

5. Composting _____ (initial/date)
   a. Complete details of approved composting procedure can be found in the Gypsy Moth Program Manual Appendix L.
   b. General description of the composting processing is as follows:
      i. The starting compost pile must be at least 200 cubic yards.
      ii. The compost pile will remain undisturbed until the internal temperature reaches one of the following:
         1. 120°F (49.0°C) for 4 continuous days
         2. 100°F (37.8°C) for 6 continuous days
      iii. The compost pile will then be turned to create a second compost pile.
         1. The outer layer of the initial compost pile, to a depth of 3 feet, will become the core material of the second compost pile.
         2. The inner core of the initial compost pile will become the outer layer of the second pile.
      iv. The second compost pile will remain undisturbed until the internal temperatures reach those listed above.
   c. Other regulated pests may require a more stringent treatment standard, in which case the more stringent standard must be applied.
   d. Shipments out of the quarantine area must be accompanied by one of the following forms of documentation:
      i. Federal Certificate (PPQ Form 540 or equivalent)
      ii. Equivalent state-approved form

6. Hammer Milling _____ (initial/date)
   a. Bark chips, bark mulch, and other products containing bark may be produced by debarking of logs followed by chip size reduction using a hammer mill.
   b. Chips or mulch produced by this method must be of common commercial dimensions.
   c. Shipments out of the quarantine area must be accompanied by one of the following forms of documentation:
      i. Federal Certificate (PPQ Form 540 or equivalent)
      ii. Equivalent state-approved form

7. Debarking _____ (initial/date)
   a. Regulated articles will have 100% of all bark removed prior to movement out of the Gypsy Moth quarantine area.
   b. Shipments out of the quarantine area must be accompanied by one of the following forms of documentation:
      i. Federal Certificate (PPQ Form 540 or equivalent)
      ii. Equivalent state-approved form

Figure D-4 Spongy Moth Compliance Agreement Template (page 4)

8. Inspection of Premises and Environs by Federal/State official _____ (initial/date)
    a. Regulated articles such as Christmas trees, evergreen boughs, branches, and woody nursery stock may be shipped out of the Gypsy Moth quarantine area only after determination by PPQ or state inspectors that the premises and environs of the growing location(s) is 100% free of all viable Gypsy Moth life stages.
    b. Determination of freedom from all viable Gypsy Moth life stages will be based on visual survey performed by PPQ and/or state inspectors and, if necessary, treatment of the premises and environs of the growing location(s).
    c. Required treatments will be applied as directed by PPQ and/or state inspectors.
    d. Records of all treatments must be retained for two years or according to state documentation retention requirements, whichever is greater, and will be made available to PPQ or state officials upon request.
    e. Only regulated material from approved growing locations are authorized to be moved out of the Gypsy Moth quarantine area.
    f. Shipments out of the quarantine area must be accompanied by one of the following forms of documentation:
        i. Federal Certificate (PPQ Form 540 or equivalent)
        ii. Equivalent state-approved form

Shipping Requirements _____ (initial/date)

1. Shipments out of the quarantine area must be accompanied by one of the following forms of documentation:
    a. Federal Certificate (PPQ 540 or equivalent)
    b. Limited Permit (PPQ Form 530)
    c. Accurate Statement (Logs and Pulpwood only)
    d. Equivalent state-approved form

2. Documentation must be attached to shipping documents such as packing slip or invoice, which accompanies the regulated articles to their destination.

3. Documentation (Certificate, Limited Permit, Accurate Statement, etc.) must be provided to the receiving facility upon delivery of each shipment of regulated material from the Gypsy Moth quarantine area.

4. Regulated articles moving out of the Gypsy Moth quarantine area to an approved facility for further treatment/mitigation:
    a. Must be shipped by a transporter operating under a PPQ compliance agreement for shipping
    b. Must be accompanied by one of the following:
        i. Accurate Statement (logs and pulpwood only)
        ii. Limited Permit (PPQ Form 530 or equivalent)
        iii. Equivalent State-approved form.

Figure D-5 Spongy Moth Compliance Agreement Template (page 5)

Addendum to Gypsy Moth Compliance Agreement

Compliance Agreement #

Receiving Facilities _____ (initial/date)

1. Receiving facilities located in non-quarantined areas may receive regulated articles from areas quarantined for Gypsy Moth only if the approved receiving facility has an active compliance agreement specifying handling procedures.
2. Receiving facilities may only accept regulated articles from loggers or shippers who are under USDA compliance agreement to move regulated articles out of the Gypsy Moth quarantine area.
3. Regulated articles must arrive at the receiving facility with one of the following signed documents attached to the waybill or other shipping documents accompanying the shipment:
    a. Federal Certificate (PPQ Form 540 or equivalent)
    b. Limited Permit (PPQ Form 530)
    c. Accurate Statement (Logs and pulpwood only)
    d. Equivalent state-approved form

    If required documentation does not accompany the shipment, the receiving facility must notify PPQ or state personnel immediately.
4. Mitigation Procedures
    a. Regulated articles will be stored, handled, and processed in accordance with all state requirements.

Figure D-6 Spongy Moth Compliance Agreement Template (page 6)

Appendix E

Guidelines for Environmental Documents

Contents

Environmental Assessment

The Environmental Assessment (EA) on the spongy moth should be linked to the detailed Final Environmental Impact Statement (FEIS). This allows the reader to refer to the FEIS as needed and allows USDA–APHIS–PPQ to cite the FEIS instead of repeating information and data contained within the FEIS.

The EA **must** describe the potential effects of the eradication program on human health and the environment on a site-specific basis. In general, the document includes why the proposed action is needed, the alternatives to the proposed action, and the environmental effects of the proposed action and its alternative. The site-specific EA should be as concise as possible, but still contain all the information necessary for the responsible official to make an informed decision.

For recent EAs and Findings of No Significant Impact (FONSIs), which may be used as examples in developing these documents, refer to Spongy Moth Programs Environmental Assessments.

The following section provides an outline of information and analyses that may be included in an EA. This format is a suggestion based on the structure of recent EAs and may be modified if a different structure is preferred or better suits the proposed treatment program.

Suggested Outline of a Spongy Moth EA

Title page with:

1. Introduction
2. Purpose and Need

   A. Public Outreach
   B. Authorizing Laws
   C. Decisions to be Made
   D. Responsible Officials

3. Alternatives

   A. **No** Action
   B. Proposed Action

4. Affected Environment

   A. Natural Resources
   B. Biological Resources
   C. Human Health and Safety

5. Environmental Consequences

   A. **No** Action
   B. Proposed Action

6. Other Issues

   A. Cumulative Impacts
   B. Threatened and Endangered Species
   C. Historic Preservation
   D. Environmental Justice

7. List of Preparers
8. List of Agencies and Persons Consulted
9. References
10. Appendices

Title Page

1. Title page should state that the document is an EA, or, in the case of a treatment proposed for a location that already has an EA on file, a Supplemental Environmental Assessment (SEA)
2. Location refers to the county and State where treatment will occur
3. List the agencies involved (lead agency first); “agencies” refers to the USDA–APHIS–PPQ and the State
4. Date of treatment—month in which treatment is expected to take place

Introduction

1. Spongy moth pest status (why it needs to be controlled in the treatment area)
2. Overview of USDA–APHIS–PPQ spongy moth eradication program
3. Overview of spongy moth life cycle
4. History of current outbreak (when detected, where detected, number detected)

Purpose and Need

Explain the purpose for the action to be taken (e.g., eradication rather than slow the spread (STS) or keeping damage below an economic threshold). Explain the need for the proposed action. Reasons for action should include any relevant biological, economic, and health factors such as: value of the host plants

- Loss of recreational value of shade trees
- Adverse effects on other
- Species in the treatment area, etc.

Briefly include the following:

1. Overview of the proposed site-specific treatment program
2. History of spongy moth eradication/control in that specific State, especially in that treatment block
3. If other treatment blocks are located in the same geographic region, mention them with a brief description
4. Reference to the 1995 Final EIS and 2012 Supplemental EIS, and that the EA is linked to these documents
5. Statement about the EA being prepared pursuant to NEPA

Public Outreach

Describe public involvement, such as notification letters, open houses, newspaper notices, etc.

Describe precautionary measures that will be taken such as poison control hotlines, emergency facilities, and law enforcement involvement.

Authorizing Laws

Through several Federal laws, the USDA has broad discretionary, statutory authority to conduct spongy moth management activities. List and briefly describe each, as concisely as possible. Refer to a recent spongy moth EA for suggested phrasing.

Applicable laws include:

- 1990 Farm Bill (P.L. 101-624)—reauthorizes the basic charter of the Cooperative Forestry Assistance Act of 1978
- Cooperation with State Agencies in Administration and Enforcement of Certain Federal Laws (7 U.S.C. section 450)—works with the Plant Protection Act (PPA) allowing USDA to conduct spongy moth treatments
- Cooperative Forestry Assistance Act of 1978 (P.L. 95-313)—authorizes Federal and State cooperation in forest pest and disease management
- Endangered Species Act (ESA), Section 7—prohibits Federal actions from jeopardizing federally listed threatened, endangered, or candidate species, or adversely affecting critical habitat of these species
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) of 1947 (as amended)—requires insecticides used in the United States to be registered by the EPA
- List State statutes authorizing the treatment program

- National Environmental Policy Act (NEPA) of 1969—requires detailed environmental analysis of any proposed Federal action that may affect the human environment
- National Historical Preservation Act, Section 106 and 36 CFR part 800:
- Protection of Historic Properties—requires that the State Historic
- Preservation Officer be consulted about proposed treatment activities
- Plant Protection Act of 2000 (7 U.S.C. section 7701)—authorizes USDA to conduct treatments for spongy moth control

Decisions To Be Made

1. Briefly discuss the interaction of the USDA and State, and the responsibilities of each.
2. Specific decisions are:

    A. Should there be a cooperative treatment program, and if so, what type?
    B. Is the proposed action likely to have any significant impacts requiring further analysis in an EIS if treatments occur?

Responsible Officials

- Supervisory official (and contact information) for USDA–APHIS–PPQ
- Supervisory official (and contact information) for the State

Alternatives

Briefly describe the proposed alternative in the introduction to this chapter.

No Action

1. No Action alternative is the alternative that continues the present course of action.
2. No Action means USDA–APHIS–PPQ would **not** cooperate with the State in the proposed treatment program.
3. Briefly discuss why this is **not** the preferred alternative (e.g., spongy moth populations and defoliation will increase).

Proposed Alternative

1. Proposed Alternative (sometimes called the “Preferred Alternative”) is the alternative USDA–APHIS–PPQ determines best meets the purpose and need; e.g., best eradicates spongy moth in the treatment area.
2. Describe the proposed treatment alternative and mention USDA–APHIS– PPQ will cooperate with the State to accomplish it.

Affected Environment

Briefly describe the site-specific environment based on the terminology of the spongy moth FEIS. This chapter typically contains sections described immediately below.

Natural Resources

Briefly describe the physical location of the proposed treatment, including the land type, soils, water, and air resources (e.g., if the treatment block is near a watershed, near agricultural land, or soils do **not** drain well).

Biological Resources

Briefly describe the biological organisms in the proposed treatment block, including any sensitive plants and animals. Include a description of any threatened or endangered plants and animals. Mention any organisms likely to be nontarget species of the treatment—i.e., any plants or animals that might potentially be affected by the proposed treatment. For spongy moth, that might include any lepidopteran larvae undergoing larval development at the time of the proposed treatment, particularly if they are threatened or endangered.

Human Health and Safety

Briefly discuss the demographics of the area in and near the treatment block:

- Are there any Federal, State, or tribal lands located inside the treatment block?
- Are there any schools, hospitals, parks, or other places where people might gather?
- At the time of treatment, is there potential for people to be physically exposed?
- How many people reside there?
- Is the area residential or is there some industrial development?

Environmental Consequences

- Mention that both alternatives may have potential environmental consequences
- Potential environmental consequences will determine whether the proposed alternative will be selected; prepare this section with careful analysis

No Action

Discuss the potential environmental consequences if the No Action Alternative is selected (i.e., if the proposed treatment does **not** take place). Depending on the situation, this might include an increase in spongy moth population in the treatment block, an increase in tree defoliation in the treatment block, and the loss of recreational resources, such as camping and hiking sites.

Proposed Action

Discuss the potential environmental consequences if the proposed treatment **does** take place. Depending on the situation, this might include protecting recreational wooded areas, pesticide drift, pesticide residues in bodies of water, and potentially exposed immunologically sensitive individuals.

Other Issues

Cumulative Impacts

Cumulative impacts refers to an aggregate of impacts to human health and the environment over time, and include reasonably foreseeable future actions. These may include impacts from previous spongy moth management actions, pesticide impacts from other non-spongy moth programs, and impacts to the local environment from other actions that incrementally increase the impact of any program actions.

Threatened and Endangered Species

- Are there any listed threatened and endangered species or designated critical habitat within the treatment block? If so, cite them. If there are **no** threatened and endangered species or designated critical habitat, indicate there are none.
- If there are threatened or endangered species within the treatment block, USDA–APHIS generally prepares a Biological Assessment (BA) analyzing the potential jeopardy to the species that might be posed by the proposed treatment. Consult ERAS at Riverdale, MD, for assistance with preparing a BA. When completed, submit the BA to the U.S. Fish & Wildlife Service (USFWS) for concurrence or denial.

Historical Preservation

Are there any historic properties in or near the treatment block? If so, provide the number of properties and any potential effect of the proposed treatment on them. If there are **no** historic properties, indicate there are none. This generally requires consultation with the State historic preservation office.

Executive Orders

- *12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*
    - Are there any minority and/or low-income populations living inside the treatment area? If so, what are the potential effects of the proposed treatment program on them? Are the potential impacts to these populations disproportionately greater than those potential impacts to the general population? Potential issues might include access to media sources announcing the proposed treatment or ethnic populations for whom English is not their first language. Cite any standard operating procedures (SOPs) or mitigations reducing these potential effects.
- *13045: Protection of Children from Environmental Health Risks and Safety Risks*
    - Does the proposed treatment pose a potential risk to environmental health and safety of the children living in the treatment area? Are the potential impacts to children living in the treatment area disproportionately higher than the impacts to other subgroups of the population living in this area? E.g., consider the location of child care centers or schools in the area. Cite any SOPs or mitigations reducing these potential effects.

List of Preparers

List the names of those who worked on the EA, including the APHIS Plant Health Director, the representative of the State department of agriculture, and other cooperators (one to two pages). For each preparer, list their qualifications (professional training, years of experience, area of expertise) and responsibility for a particular part of the EA.

Agencies and Persons Consulted

List the names and addresses of any agencies and persons who provided input to the EA, including:

- State Department of Agriculture
- USDA-AHIS-PPQ offices in the region of treatment and in Riverdale, MD
- If consulted, the State historic preservation office, State Department of Health, and State Department of Natural Resources

References

List any references used in the EA. This includes reports from other agencies such as EPA and USFWS, as well as publications from scientific journals. Refer to a recent EA for style.

Appendices

Include items in appendices that are specific to the treatment plan:

- Letters to and from Federal and/or State agencies
- Map of treatment block
- Public scoping notices—refer to the spongy moth FEIS, Appendix C—Public Involvement and Issues for more detailed information
- Treatment product labels and Safety Data Sheets (SDS)

These items will vary depending on the proposed treatment and the judgment of the individuals responsible for the treatment. This allows for flexibility in preparing this section.

Finding of No Significant Impact

The purpose of a Finding of No Significant Impact (FONSI) is to provide a concise statement indicating the proposed action will **not** have a significant effect on human health or the environment. To justify the finding, a FONSI cites analyses in the EA and analyses incorporated from the associated programmatic EIS by reference. The FONSI is essentially a one- to two-page summary of the EA results.

Contents of a spongy moth eradication program FONSI include the

following:

1. Treatment block location
2. Estimated date of treatment
3. Treatment block size
4. Proposed treatment alternative
5. Description of public outreach and summary of public comments
6. Statement of any threatened and endangered species in treatment block
7. Statement of any effect on children, low-income populations, or minorities
8. Concluding statement indicating the treatment program will not pose a significant risk to human health or the environment

To develop a FONSI for a spongy moth eradication program, use the FONSI Examples. These examples are **only** a suggested outline for a FONSI, as with the EA, the FONSI format may be modified.

FONSI Examples

FINDING OF NO SIGNIFICANT IMPACT
(for)
[EXACT LOCATION BY COUNTY, STATE, OR CITY, SPECIFIC LOCATION(S), AS APPLICABLE]

[YEAR] APHIS Cooperative Gypsy Moth Eradication Program Environmental Assessment

The U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS) prepared an environmental assessment (EA) evaluating the impacts of a treatment for gypsy moth in (location). The EA is incorporated into this Finding of No Significant Impact (FONSI) by reference and is available at the APHIS website at https://www.aphis.usda.gov/planthealth/ea or from

USDA-APHIS-PPQ

(address of PPQ office in the affected area)

The draft EA evaluated the potential impacts to human health and the environment from the proposed treatment of a (size)-acre block in the (area) of (county, state), with (treatment alternative), for gypsy moth control. The use of (treatment alternative) was previously evaluated in an Environmental Impact Statement as one of six alternatives for treating gypsy moth and was found to be most effective at treating gypsy moth outbreaks similar to the one described in (county, state). The EA was made available to the public for a 30-day public comment period beginning on (date), on the APHIS website at https://www.aphis.usda.gov/planthealth/ea/. Notice of the availability was published in (list of newspapers). (Brief description of any comments and APHIS responses). The analysis in the EA suggests that the treatment of gypsy moth in the (size)-acre block in (county, state) with (treatment alternative) will not result in significant impacts to human health and the environment.

(If applicable, mention consultation with the U.S. Fish and Wildlife Service about any threatened and endangered species).

There are no disproportionate adverse effects to minorities, low-income populations, or children, in accordance with Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," and Executive Order 13045, "Protection of Children from Environmental Health Risks and Safety Risks." The potential for impacts to historic properties, including sites of tribal importance were evaluated pursuant to Section 106 of the National Historic Preservation Act. (Mention any historic sites in the proposed treatment block).

_____ _____
AUTHORIZING FEDERAL OFFICIAL'S NAME DATE

_____
TITLE

_____
UNIT or DIVISION

Figure E-1 Example of a Generic FONSI

Finding of No Significant Impact Gypsy Moth Eradication Program
in Henepin County, Minnesota
Environmental Assessment
May 2017

The U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS) prepared an environmental assessment (EA) evaluating the impacts of a treatment for gypsy moth in Henepin County, Minnesota. The EA is incorporated into this Finding of No Significant Impact (FONSI) by reference and is available at the APHIS website at https://www.aphis.usda.gov/planthealth/ea or from

USDA-APHIS-PPQ
900 American Blvd. East, Suite 204
Bloomington, MN 55420

The draft EA evaluated the potential impacts to human health and the environment from the proposed treatment of a 329-acre block in the Henepin County, Minnesota, with the microbial insecticide *Bacillus thuringiensis* kurstaki (Btk) for gypsy moth control. The use of Btk was previously evaluated in an Environmental Impact Statement as one of six alternatives for treating gypsy moth and was found to be most effective at treating gypsy moth outbreaks similar to the one described in Henepin County, Minnesota. The EA was made available to the public for a 30-day public comment period beginning on March 30, 2017, on the APHIS website at https://www.aphis.usda.gov/planthealth/ea/. Notice of the availability was published in the Star Tribune on March 30, 2017. APHIS received no comments on the EA. The analysis in the EA suggests that the treatment of gypsy moth in the 329-acre block in Henepin County, Minnesota, with Btk will not result in significant impacts to human health and the environment. Two aerial applications of Btk will be applied with an interval of approximately five to 10 days between each application. These applications are estimated to occur sometime in early to mid-May 2017. The exact date of application will be timed so that the applications occur during the early larval stages when gypsy moth caterpillars hatch from their eggs and are most susceptible to treatments.

APHIS has consulted with the U.S. Fish and Wildlife Service and has determined that the preferred treatment alternative may affect, but is unlikely to adversely affect the threatened Northern long-eared bat (*Myotis septentrionalis*). APHIS received a concurrence letter from the U.S. Fish and Wildlife Service on this determination on December 28, 2016.

There are no disproportionate adverse effects to minorities, low-income populations, or children, in accordance with Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," and Executive Order 13045, "Protection of Children from Environmental Health Risks and Safety Risks." Available risk assessment and toxicity data that are summarized in this EA show low risk to the human population, including children, from the proposed use of Btk. The potential for impacts to historic properties, including sites of tribal importance, were evaluated pursuant to Section 106 of the National Historic Preservation Act. A letter from the State Historic Preservation Office of the Minnesota Historical Society received on March 7, 2017, confirmed that no historic properties occur within the proposed treatment block.

Figure E-2 Example of a Completed FONSI (page 1 of 2)

I have determined that there would be no significant impact on the quality of the human environment from implementation of the preferred alternative. APHIS' finding of no significant impact from the preferred alternative is based on the results of the analysis in this EA. Lastly, because I have not found evidence of significant environmental impact associated with the proposed program, I further find that no additional environmental documentation needs to be prepared and that the program may proceed.

_____ _____

Jane Doe Date

State Plant Health Director

USA

Figure E-3 Example of a Completed FONSI (page 2 of 2)

Appendix

F

Procedures for Composting Bark

Contents

Procedure for Composting Bark in a Trench

Step 1: Start a compost pile

Start a compost pile of **at least** 200 cubic yards in one end of a trench.

NOTICE

1. The material on the outer side of the compost pile **must be free** of both eggs that could hatch and larvae.
2. The compost pile **must** be as far away from host material as possible.

Step 2: Leave compost pile undisturbed

Allow the compost pile to remain undisturbed until the temperature reaches 120 °F (49 °C) for **at least** four continuous days. In situations in which 120 °F (49 °C) cannot be maintained for **at least** four continuous days, the compost pile shall remain undisturbed until the temperature reaches 100 °F (37.8 °C) for **at least** six continuous days.

Step 3: Remove compost pile's outer layer

Using a front-end loader or a bulldozer, remove the outer layer of the compost pile to a depth of three feet.

Step 4: Start a second compost pile

Down the trench, start a second compost pile using the recently removed cover material as a core.

Step 5: Move the core material

Move the core material from the first compost pile and place on the second compost pile as a cover **at least** three feet deep (leave some composted material to serve as "inoculum" for subsequent piles).

Step 6: Leave second compost pile undisturbed

Allow the second compost pile to remain undisturbed until the temperature reaches 120 °F (49 °C) for **at least** four continuous days. In situations in which 120 °F (49 °C) cannot be maintained for **at least** four continuous days, the second compost pile shall remain undisturbed until the temperature reaches 100 °F (37.8 °C) for **at least** six continuous days.

Step 7: Remove second compost pile

Remove the second compost pile and use as fully composted material.

Step 8: Repeat procedure

This procedure will allow continuous operation. After the first compost pile is "turned" to become the second compost pile, a new "first" compost pile can be started.

Procedure for Composting Bark in a Pile

Step 1: Start a compost pile

Start a compost pile of **at least** 200 cubic yards.

NOTICE

1. The material on the outer side of the compost pile **must be free** of both eggs that could hatch and larvae.
2. The compost pile **must** be as far away from host material as possible.

Step 2: Leave compost pile undisturbed

Allow the compost pile to remain undisturbed until the temperature reaches 120 °F (49 °C) for **at least** four continuous days. In situations in which 120 °F (49 °C) cannot be maintained for **at least** four continuous days, the compost pile shall remain undisturbed until the temperature reaches 100 °F (37.8 °C) for **at least** six continuous days.

Step 3: Remove compost pile's outer layer

Using a front-end loader or a bulldozer, remove the outer layer of the compost pile to a depth of three feet.

Step 4: Start a second compost pile

Start a second compost pile using the recently removed cover material as a core.

Step 5: Move the core material

Move the core material from the first compost pile and place on the second compost pile as a cover **at least** three feet deep (leave some composted material to serve as "inoculum" for subsequent piles).

Step 6: Leave second compost pile undisturbed

Allow the second compost pile to remain undisturbed until the temperature reaches 120 °F (49 °C) for **at least** four continuous days. In situations in which 120 °F (49 °C) cannot be maintained for **at least** four continuous days, the second compost pile shall remain undisturbed until the temperature reaches 100 °F (37.8 °C) for **at least** six continuous days.

Step 7: Remove the second compost pile

Remove the second compost pile and use as fully composted material.

Step 8: Repeat procedure

This procedure will allow continuous operation. After the first compost pile is “turned” to become the second compost pile, a new “first” compost pile can be started.

Appendix G

Protocols for Regulated Logs Originating in the Spongy Moth Quarantine Area

Contents

Executive Summary

The Spongy Moth Program has adopted a standard-based approach to processing requirements for regulated logs moving to receiving mills or other facilities outside the quarantine area. The standard requires the number of moths caught in traps at each receiving mill or facility be statistically similar to trap catch numbers in the surrounding area. Spongy moth population levels at and around each regulated facility are monitored on an annual basis through a statistical analysis of each year's trapping data. Should this analysis indicate elevated trap catch numbers

have occurred at a particular mill, a series of recommended remedial actions designed to bring the facility back into conformance with the standard has been developed.

Background

APHIS's Spongy Moth Program has adopted a standard-based approach for how logs moving interstate from quarantine areas to processing facilities outside the quarantine area are regulated. Historically, moving logs was subject to a series of Federal requirements, including moving under an Accurate Statement or Limited Permit and certain processing conditions at the processing facility. Movement requirements are found in the Code of Federal Regulations (CFR) (7 CFR 301.45-4), while processing requirements were housed in the APHIS Spongy Moth Program Manual. However, over time, State to State variances in processing conditions arose and industry practices changed. An analysis of numbers of spongy moths caught in traps near regulated mills outside the quarantine area indicates moving logs from the quarantine area to primary processing facilities does **not** typically result in elevated spongy moth population levels in the vicinity of those facilities. Adopting this standard-based approach accommodates these changes and is in keeping with Executive Orders to minimize regulatory burdens on the public while still maintaining high levels of protection to America's agricultural and natural resources.

Under this standard-based approach, spongy moth population levels are monitored at receiving mills and other facilities and compared to population levels in the surrounding environment. Each year, population levels in the immediate vicinity of the facilities receiving regulated logs are compared to population levels in the surrounding environment. The standard APHIS has adopted requires population levels in the immediate vicinity of each mill **not** be statistically elevated when compared to population levels in the surrounding environment. APHIS continues to require that log movement occur under a properly issued Limited Permit or Accurate Statement. Receiving mills and other facilities and their suppliers **must** enter into Federal compliance agreements (CA) for log movement. Each State determines appropriate requirements for processing regulated logs once they are at the processing facility and enters into State CAs with receiving facilities detailing those requirements and any other applicable conditions deemed necessary.

Beginning in June 2014 an interagency working group convened to develop specific recommendations on the steps and actions necessary to implement the standard-based approach to regulating logs moving from the quarantine area to mills and other receiving facilities for processing.

This document details the working group's findings. Working group members included representatives from the major stakeholder groups that would be affected, including the National Plant Board (NPB), the U.S. Forest Service (FS), the Spongy Moth Slow the Spread (STS) Foundation, and APHIS.

Specific Policies and Protocols

Federal Regulatory Actions

APHIS's spongy moth regulations serve as the foundational policy guidance for program activities. These regulations can be found in 7 CFR 301.45. Of particular relevance to this document are the regulations governing "Conditions of Movement of Regulated Articles" (7 CFR 301.45-4). This section of the Federal spongy moth regulations contains only one requirement for moving logs out of the quarantine area—they **must** move under a properly issued certificate or Limited Permit. Alternatively, the logs can move under an Accurate Statement after being inspected by trained personnel operating under a CA and found to be **free** of spongy moth life stages. This requirement is retained in the standard-based approach.

Survey Protocols

The standard-based approach to regulating logs is rooted in spongy moth traps being calibrated to pest population levels in the vicinity of a trap. For the standard-based approach to work, traps **must** be placed at and in the area surrounding primary processing facilities receiving regulated logs. In areas where significant levels of trapping already occur, set two traps at the facility itself—standard trapping densities are sufficient to monitor moth population levels in the surrounding area. In areas where trapping densities are low, set two traps at the regulated facility, along with a small number of additional traps in the surrounding area to serve as a basis for comparison of population levels at the mill and in the surrounding environment.

- For mills in areas covered by STS or State survey (areas with a background spongy moth population) follow current trapping protocols and densities
- Identify **all** mills receiving regulated logs
- Place two (or more) traps in host material at the perimeter of each regulated mill
- Place four to ten traps around mills in areas with **no** known background spongy moth population
    - Do **not** place traps closer than two kilometers from each mill
    - Trap array should extend out ten kilometers from each mill

Data Capture and Management

Properly capturing the outcomes from the survey effort is instrumental to performing an analysis of trap catch numbers at regulated primary processing facilities.

- All trap catch data is entered into either Integrated Plant Health Information System (IPHIS) or the STS database
- All trap placement data is entered into either IPHIS or the STS database
- Appropriate existing notations within national spongy moth survey and STS survey data capture protocols should be used to designate traps placed at regulated mill sites

Data Analysis

To determine a receiving primary processor is in conformance with standard of not exhibiting elevated population levels at the mill site, an annual, transparent, and robust analysis of trap catch numbers is necessary. A space-time cluster technique developed by PPQ's Science and Technology (S&T) makes maximum use of existing trapping protocols while allowing each mill's performance to be individually examined.

- Description of the analytic technique is provided in each year's report and in Description of Space-Time Cluster Analysis
- Each regulated mill site is analyzed separately using the space-time cluster technique
    - If two or more mills are in very close proximity to one another, they are combined into a single "mill feature" for the analysis
- APHIS analyzes trap catch data annually (each winter)

Compliance Agreements

As noted in the Background section of this document, State-to-State variation exists in processing requirements for regulated logs. This variety of requirements is reflected in the current inventory of compliance agreements (CAs) held by the Spongy Moth Program. Under the standard-based approach, Federal CAs contain standard language relating to moving logs out of the quarantine area. Individual States remain free to establish or maintain processing requirements for those logs once they arrive at the mill site. State requirements for processing are detailed in a State-issued CA or in a clearly delineated section of a joint State-Federal CA.

- Federal CAs are limited to the continued need for a Limited Permit or Accurate Statement for interstate movement out of the quarantine area **along with** associated site and paperwork access requirements
- Joint CAs may be issued, but activities governed under Federal authority (first bullet in this list) should be clearly delineated from those regulated under State authority (third bullet in this list)
- State CAs stipulate what processing requirements are necessary at receiving mills (e.g., processing times, duration of high-risk period, distance from surrounding host vegetation) **along with** associated site and paperwork access requirements

Costs

Mills found to be **out** of conformance with the standard bears the costs associated with any necessary remedial actions.

Recommended Remedial Actions

In anticipation of the occasional instance in which a given primary processor is found to be exhibiting statistically significant higher trap catch numbers at the mill when compared to trap catch numbers from the surrounding area, and thus, **out** of conformance with the standard, provide a list of remedial actions to bring the mill back into conformance. There may be instances in which nonconformant trap catch numbers are **not** the result of the mill's activities;

For this reason, it is strongly recommended that any follow-up actions begin with a visit to the nonconformant mill and identify any contributing factors. Additional remedial actions are predicated on the findings from that initial mill visit. Specific remedial actions are determined by the State in which that mill is located, in consultation with APHIS and mill management.

1. Conduct an initial visit and inspection of nonconforming facility
    A. Review practices and protocols at the facility to identify any potential contributing factors
    B. Assess background spongy moth population levels in the area
2. Based on findings of the initial visit, potential actions might include (**but are not limited to**):
    A. Conducting a delimiting survey around the facility the following year
    B. Shortening the processing timeframe during the high-risk egg hatch period
    C. Modifying log storage protocols
    D. Increasing the frequency of compliance monitoring visits
    E. Requiring the mill to pay for eradication, treatment, or increased trapping costs (in States where authorities exist to do so)
    F. Offering (or requiring) recertification or other appropriate training to mill personnel and the mill's loggers
    G. Installing a barrier to spongy moth movement between the mill premises and surrounding host vegetation
    H. Extending the length of the high-risk period

Description of Space-Time Cluster Analysis

Basis for Statistical Analysis

Anselin's Local Indicator of Spatial Association (LISA), a measure of spatial autocorrelation, is used to identify "hot spot" clusters of trap counts compared to the background population, or average trap count. It also detects spatial outliers, which is useful in identifying a single trap with catch surrounded by traps with zero catches (which may be indicative of a new introduction).

Procedure

Sawmills are buffered by two kilometers, which represents their immediate environs affected by a pathways introduction of spongy moth via regulated lumber transport and processing. The background population is evaluated over a 24-kilometer buffer around the mill, which also defines the extent of the LISA analysis. Trap counts that intersect treatment areas are removed from the analysis. A moving window analysis of ten years of trap catch data within the environs area for each mill utilizes a four-kilometer, two-year space-time window. Multiple testing over x trap locations inflates significance testing, therefore, a false discovery rate is applied. Clusters are further analyzed to ensure they are "spatially distinct" and separated by a sufficient distance from other clusters of matching years outside the mill's immediate environs. This ensures the

population cluster detected is **not** likely to be influenced by nearby dynamics outside the mill environs.

Automation

The tool is written in Python code and is built into an ArcGIS toolbox for workflow automation. The tool is easy to use and can be applied to other programs looking for evaluation of pest population levels near potential introduction sites.

Deliverable

A formatted output table that records individual mill sites with significant cluster results. For records that return a significant result in the most recent year, the cluster results are graphically displayed within a geographic information system (GIS) environment to better visualize and interpret the results.

Appendix

H

Accurate Statement

Contents

Introduction

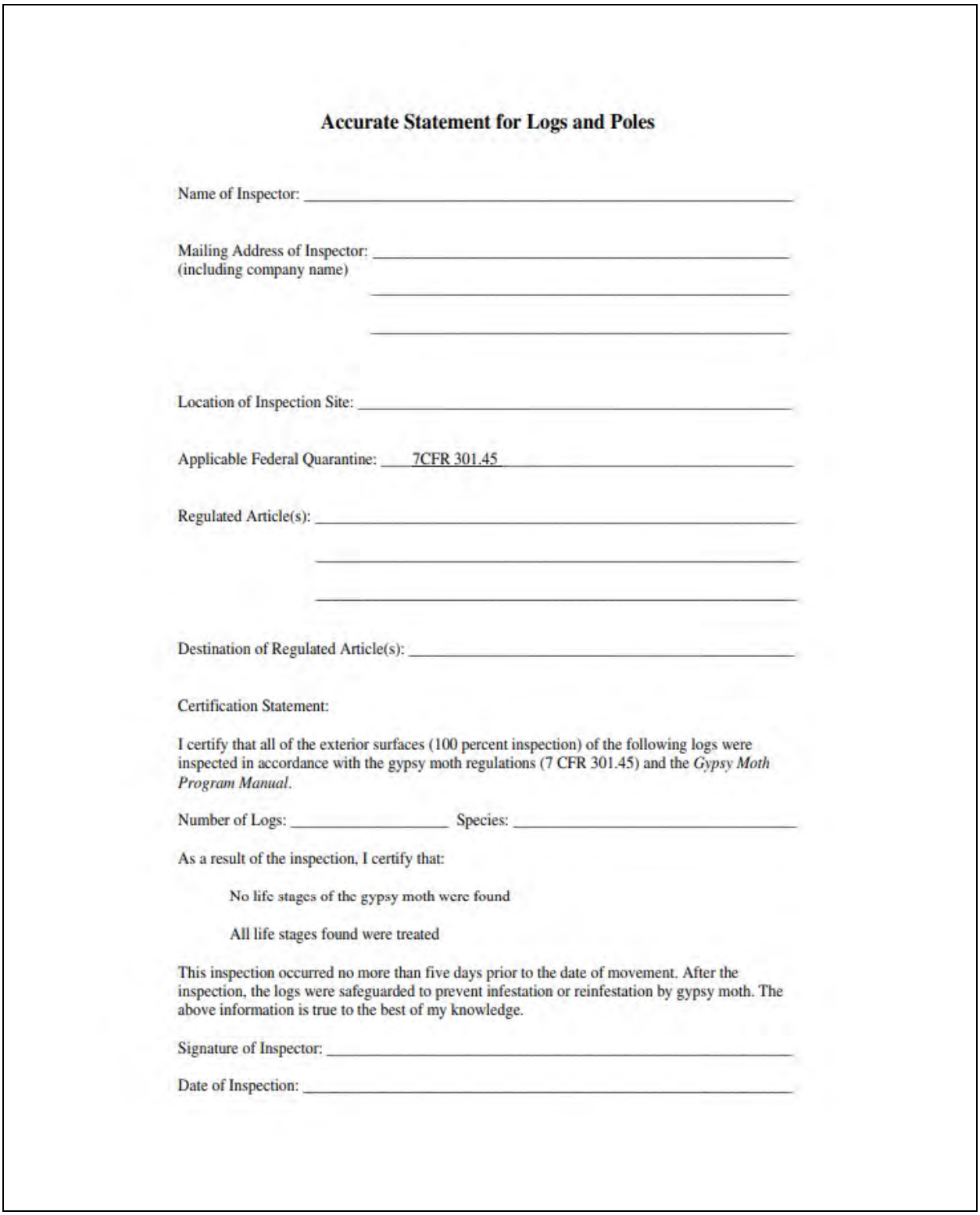
This appendix contains information on the signed Accurate Statement described in the spongy moth regulations. There are two Accurate Statements, one for logs and one for pulpwood or wood chips. Refer to Figure H-1 for an example of an Accurate Statement for logs and poles and Figure H-2 for an example of an Accurate Statement for pulpwood (or wood chips). The Accurate Statement must be attached to the waybill or other shipping documents accompanying logs, pulpwood, and wood chips inspected under a compliance agreement (CA).

Required Information for the Accurate Statement

The signed Accurate Statement **must** contain the following:

- Applicable Federal quarantine (7 CFR 301.45)
- Certification statement
- Date of inspection
- Destination of regulated article(s)
- Location of inspection site
- Mailing address of inspector
- Name of inspector
- Signature of inspector
- Type and quantity of regulated article(s)

Accurate Statement for Logs and Poles



Accurate Statement for Logs and Poles

Name of Inspector: _____

Mailing Address of Inspector: _____
(including company name)
_____
_____

Location of Inspection Site: _____

Applicable Federal Quarantine: 7CFR 301.45

Regulated Article(s): _____
_____
_____

Destination of Regulated Article(s): _____

Certification Statement:

I certify that all of the exterior surfaces (100 percent inspection) of the following logs were inspected in accordance with the gypsy moth regulations (7 CFR 301.45) and the *Gypsy Moth Program Manual*.

Number of Logs: _____ Species: _____

As a result of the inspection, I certify that:

No life stages of the gypsy moth were found

All life stages found were treated

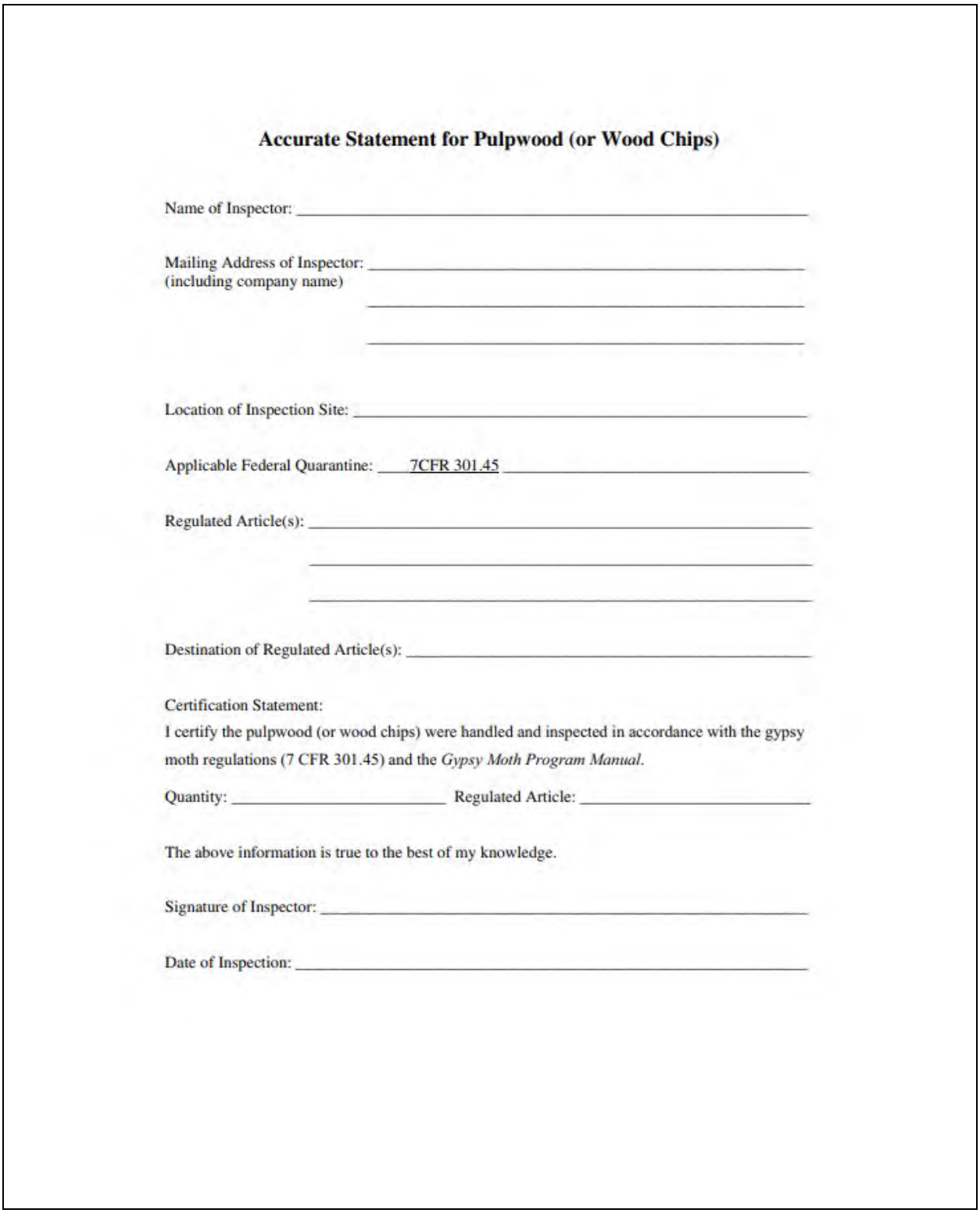
This inspection occurred no more than five days prior to the date of movement. After the inspection, the logs were safeguarded to prevent infestation or reinfestation by gypsy moth. The above information is true to the best of my knowledge.

Signature of Inspector: _____

Date of Inspection: _____

Figure H-1 Example of Accurate Statement for Logs and Poles

Accurate Statement for Pulpwood (or Wood Chips)



Accurate Statement for Pulpwood (or Wood Chips)

Name of Inspector: _____

Mailing Address of Inspector: _____
(including company name)

_____

_____

Location of Inspection Site: _____

Applicable Federal Quarantine: 7CFR 301.45 _____

Regulated Article(s): _____

_____

_____

Destination of Regulated Article(s): _____

Certification Statement:
I certify the pulpwood (or wood chips) were handled and inspected in accordance with the gypsy moth regulations (7 CFR 301.45) and the *Gypsy Moth Program Manual*.

Quantity: _____ Regulated Article: _____

The above information is true to the best of my knowledge.

Signature of Inspector: _____

Date of Inspection: _____

Figure H-2 Example of Accurate Statement for Pulpwood (or Wood Chips)

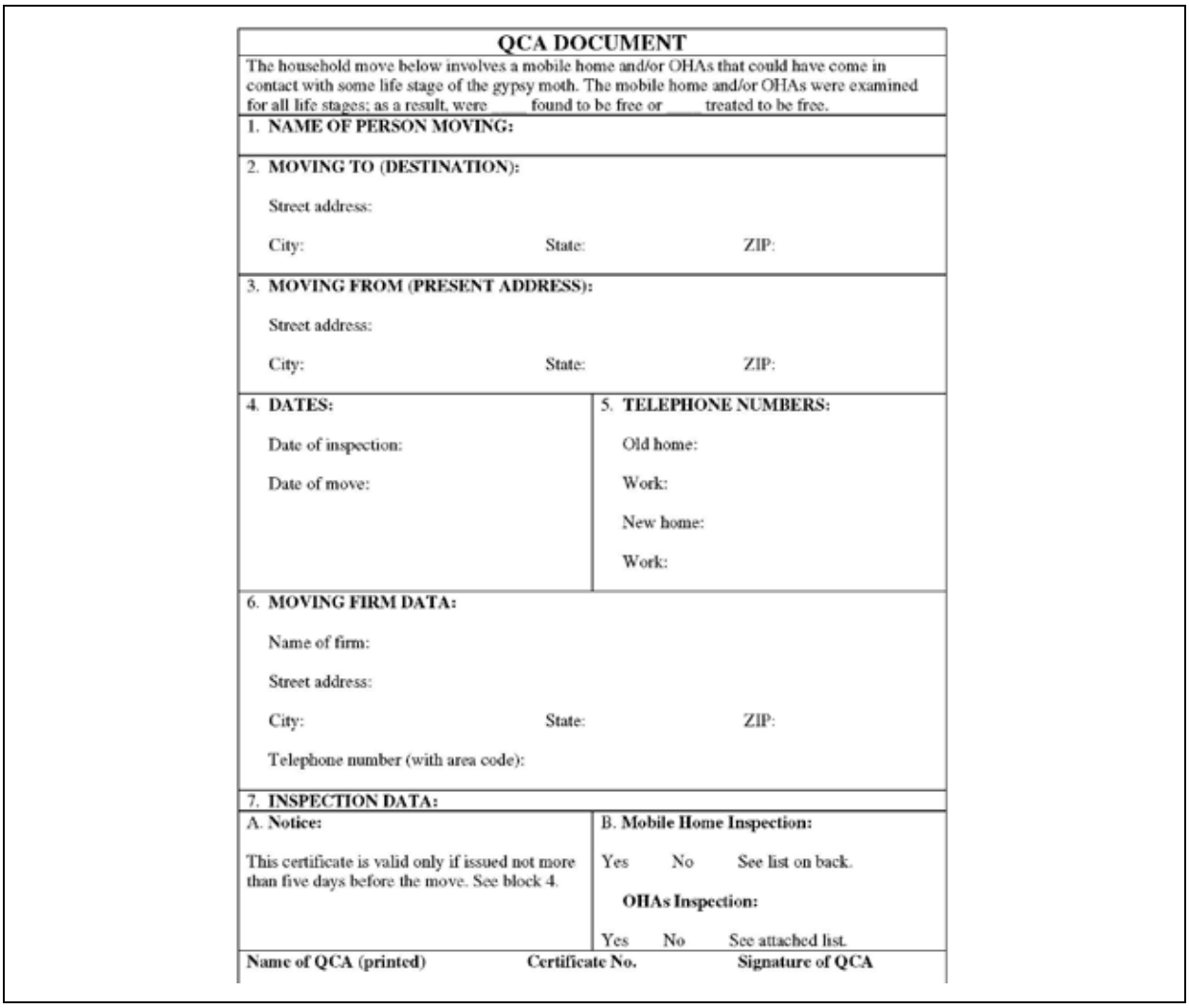
Appendix

I

Qualified Certified Applicator Document

Qualified Certified Applicator Document

Refer to Figure I-1 for an example of a Qualified Certified Applicator (QCA)document.



QCA DOCUMENT

The household move below involves a mobile home and/or OHAs that could have come in contact with some life stage of the gypsy moth. The mobile home and/or OHAs were examined for all life stages; as a result, were ____ found to be free or ____ treated to be free.

1. **NAME OF PERSON MOVING:**

2. **MOVING TO (DESTINATION):**

Street address:

City: State: ZIP:

3. **MOVING FROM (PRESENT ADDRESS):**

Street address:

City: State: ZIP:

4. **DATES:**	5. **TELEPHONE NUMBERS:**
Date of inspection:	Old home:
Date of move:	Work:
	New home:
	Work:

6. **MOVING FIRM DATA:**

Name of firm:

Street address:

City: State: ZIP:

Telephone number (with area code):

7. **INSPECTION DATA:**

A. **Notice:**	B. **Mobile Home Inspection:**
This certificate is valid only if issued not more than five days before the move. See block 4.	Yes No See list on back.
	OHAs Inspection:
	Yes No See attached list.

Name of QCA (printed) **Certificate No.** **Signature of QCA**

Figure I-1 QCA Document

Qualified Certified Applicator Document

Mobile Home and/or Outdoor Household Articles Associated Items

Refer to Outdoor Household Articles for a list of OHAs.

Appendix

J

Emergency Action Notification, PPQ Form 523

Refer to Figure J-1 for an example of an Emergency Action Notification (EAN).

Emergency Action Notification, PPQ Form 523

Emergency Action Notification, PPQ Form 523

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information is 0579-0102. The time required to complete this information collection is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

FORM APPROVED - OMB NO. 0579-0102

U.S. DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE

EMERGENCY ACTION NOTIFICATION

SERIAL NO.

1. PPQ LOCATION | 2. DATE ISSUED

3. NAME AND QUANTITY OF ARTICLE(S)

4. LOCATION OF ARTICLES

5. DESTINATION OF ARTICLES

6. SHIPPER

7. NAME OF CARRIER

8. SHIPMENT ID NO.(S)

9. OWNER/CONSIGNEE OF ARTICLES

Name:

Address:

PHONE NO.: FAX NO.:

SS NO.: TAX ID NO.:

10. PORT OF LADING | 11. DATE OF ARRIVAL

12. ID OF PEST(S), NOXIOUS WEEDS, OR ARTICLE(S)

12a. PEST ID NO. | 12b. DATE INTERCEPTED

13. COUNTRY OF ORIGIN | 14. GROWER NO.

15. FOREIGN CERTIFICATE NO.

15a. PLACE ISSUED | 15b. DATE

Under Sections 411, 412, and 414 of the Plant Protection Act (7 USC 7711, 7712, and 7714) and Sections 10404 through 10407 of the Animal Health Protection Act (7 USC 8303 through 8306), you are hereby notified, as owner or agent of the owner of said carrier, premises, and/or articles, to apply remedial measures for the pest(s), noxious weeds, and or article(s) specified in Item 12, in a manner satisfactory to and under the supervision of an Agriculture Officer. Remedial measures shall be in accordance with the action specified in Item 16 and shall be completed within the time specified in Item 17.

AFTER RECEIPT OF THIS NOTIFICATION, ARTICLES AND/OR CARRIERS HEREIN DESIGNATED MUST NOT BE MOVED EXCEPT AS DIRECTED BY AN AGRICULTURE OFFICER. THE LOCAL OFFICER MAY BE CONTACTED AT:

16. ACTION REQUIRED

☐ TREATMENT:

☐ RE-EXPORTATION:

☐ DESTRUCTION:

☐ OTHER:

Should the owner or owner's agent fail to comply with this order within the time specified below, USDA is authorized to recover from the owner or agent cost of any care, handling, application of remedial measures, disposal, or other action incurred in connection with the remedial action, destruction, or removal.

17. AFTER RECEIPT OF THIS NOTIFICATION COMPLETE SPECIFIED ACTION WITHIN (Specify No. Hours or No. Days):

18. SIGNATURE OF OFFICER:

ACKNOWLEDGMENT OF RECEIPT OF EMERGENCY ACTION NOTIFICATION

I hereby acknowledge receipt of the foregoing notification.

SIGNATURE AND TITLE: | DATE AND TIME:

19. REVOCATION OF NOTIFICATION

ACTION TAKEN:

SIGNATURE OF OFFICER: | DATE:

PPQ FORM 523 (JULY 2002) Previous editions are obsolete.

Clear Form

Figure J-1 Emergency Action Notification (EAN), PPQ Form 523

Appendix

K

After Action Review

After Action Reviews (AAR) is a process for collecting valuable information about actions APHIS has taken in addressing pest mitigation activities. AARs can be collected electronically, with APHIS approved tools (QuestionPro) or in the traditional paper format.

AAR regularly begin with a brief description of the actions taken or response being reviewed. It should include the intent of the review and what benefits it can provide for future actions in improving the processes and outcomes. The AAR is then followed up with a few basic questions.

Example;

Thank you for helping improve our response to incidents by providing feedback on our recent "Gypsy Moth Treatment – WA 2018". Your feedback is valuable and will contribute greatly to managing our future activities and operations--so thanks! Please begin completing the survey at your earliest convenience: upon your arrival, during your TDY or upon your return home, then submit after you return home. Note that you can submit more than one response to the survey if you have additional feedback.

After the introductory questions, you may answer any or none of the remaining questions, please provide as much detail as you like, and you will have the option of repeating the core questions to provide as many responses as you like. We encourage you to provide suggestions to improve anything you comment on, including those things that worked well. However, it is especially important to provide ideas and suggestions for things that need improvement or did not work well. All responses are anonymous unless you choose to provide your contact information. Just click Continue to begin this brief survey--and thanks!

How did you participate?

- ☐ State Cooperator
- ☐ VERRC Member
- ☐ Dispatch
- ☐ Off-site Support Staff
- ☐ NIMT Member
- ☐ Domestic TDY Responder
- ☐ TDY Support Staff
- ☐ Other (if selected, please specify: AEOC, FO's Support, etc.)

If you would like to be contacted by someone to discuss your responses or ideas, please provide your contact information below.

Remember, unless you provide your contact information here, your responses are anonymous and confidential.

First Name : ☐

Last Name : ☐

Address 1 : ☐

Figure K-1 Example of After Action Review (page 1)

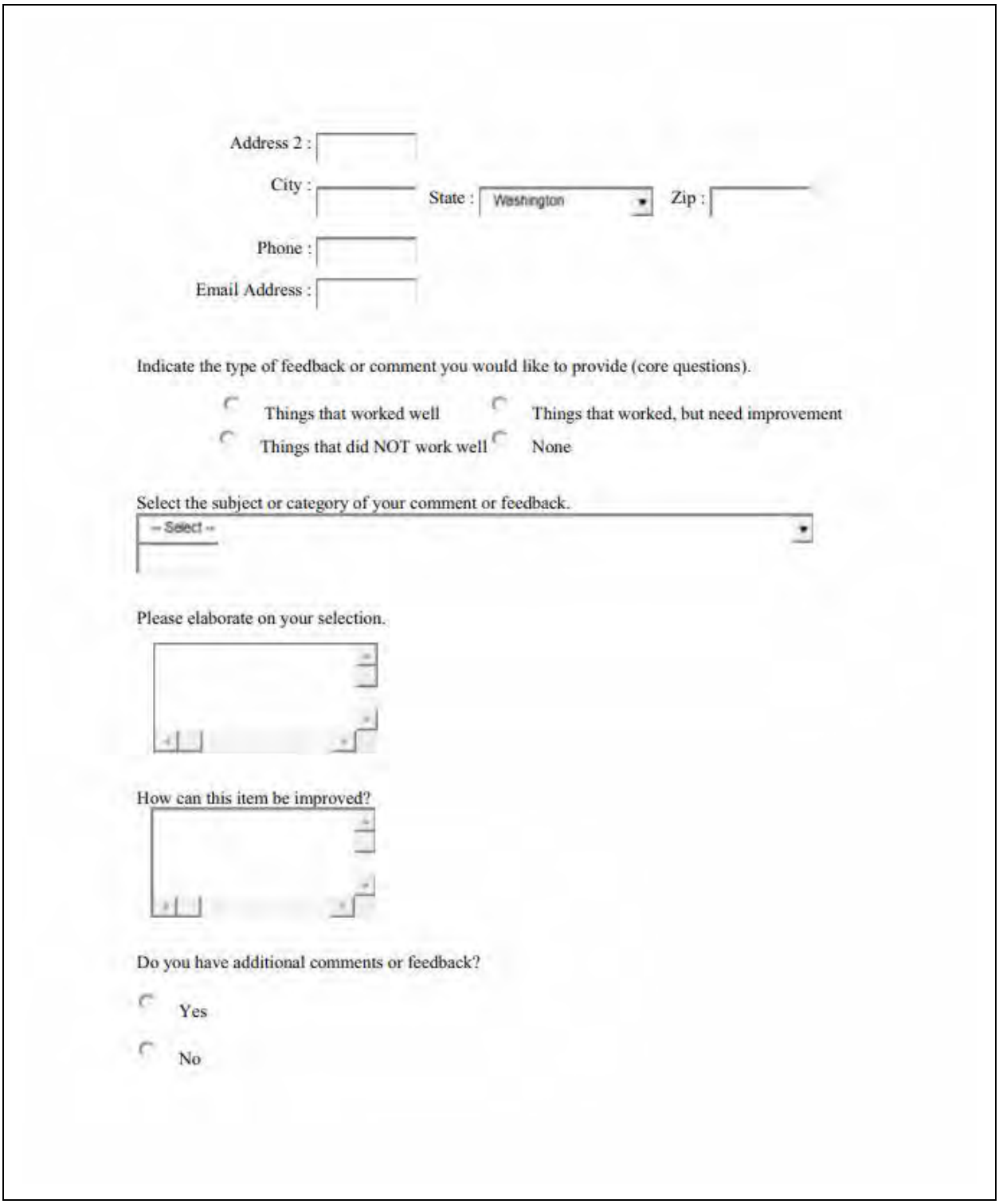


Figure K-2 Example of After Action Review (page 2)

Spongy Moth Program

Glossary

Use this glossary to find the meaning of specialized words, abbreviations, acronyms, and terms used by USDA–APHIS–PPQ–PHP. To locate where in the manual a given definition, term or abbreviation is mentioned, refer to the index.

Definitions, Terms, and Abbreviations

Accurate Statement. document, prepared by an employee of an establishment operating under a compliance agreement (CA), which allows the establishment to ship logs, pulpwood, and/or wood chips. Along with other items, the Accurate Statement includes a certifying statement, information on the type of regulated article, the amount and/or number of regulated articles, and the signature of the inspecting employee

active ingredient. chemical in a product that produces the desired effect

artificial dispersal. dispersal by **other than** natural means; i.e., artificial dispersal occurs through human activities such as moving commercial products (nursery stock), vehicles (RVs, campers, cars), and forest products (logs, pulpwood with bark, bark mulch), and outdoor household articles (OHAs)

associated equipment. articles used in conjunction with mobile homes and RVs, such as, **but not limited to**, awnings, tents, outdoor furniture, trailer blocks, and trailer skirts

***Bacillus thuringiensis kurstaki* (Btk).** scientific name of the bacterium that is pathogenic to the larval stage of many lepidopterous insects. Btk is the active ingredient in several biological insecticides sold under various trade names

bark. tough outside covering of the trunk, branches, and roots of trees and certain other plants; the bark includes all tissues outside the vascular cambium (Barnhart, Dictionary of Science).

bark products. products containing pieces of bark; these products include bark chips, bark nuggets, bark mulch, and bark compost; bark that has been composted according to the procedures in Appendix F may move out of the quarantine area

Btk. acronym for the bacterium *Bacillus thuringiensis kurstaki* and its biological insecticide

CA. abbreviation for compliance agreement

certificate. document, PPQ Form 540, issued by PPQ officers, State personnel, or CA holders that allows for moving regulated articles into or through a noninfested area

Christmas tree. Christmas trees are trees cut from their roots—if the Christmas trees have roots attached (e.g., balled and burlapped plants), the trees are considered nursery stock **even if** intended for display

compliance agreement (CA). official document specifying the conditions for growing, handling, or moving regulated articles, e.g., a written agreement between PPQ and/or the State and a shipper (a person or company) engaged in handling or moving regulated articles. In the CA, the shipper of the regulated articles agrees to comply with certain requirements to allow shipping the regulated articles

debarking. removing bark from round wood, wood carrying its natural rounded surface (debarking does **not** necessarily make the wood bark free)

defoliation. loss or shedding of leaves; significant defoliation occurs when spongy moths strip **at least** 30% of the leaves from the trees in a given area

delimiting survey. survey establishing the boundaries of an area considered to be infested or **free** of a pest; the typical delimiting survey for a spongy moth infestation uses pheromone traps, such as the delta trap

delta trap. triangular-shaped trap made of plastic-coated cardboard using Disparlure to attract male spongy moths

detection survey. survey determining if a pest is present; detection surveys for the spongy moth focus on finding infestations, particularly isolated infestations; the typical detection survey uses pheromone traps (when suspected infestations or obvious infestations are detected, further surveying using a delimiting survey usually follows)

Disparlure. commercially synthesized analogue of the sex pheromone emitted by the female spongy moth to attract the male

EA. abbreviation for Environmental Assessment

egg mass survey. survey to find egg masses to establish whether reproduction of spongy moth has occurred (if an infestation is present) and/or the population density by determining the amount of reproduction

eradication project. action taken to eliminate an infestation (with spongy moth, usually an isolated infestation)

established. introduced pest, present in an area, reproducing, and expected to continue to reproduce

FEIS. abbreviation for Final Environmental Impact Statement (refer to Final and Supplemental Environmental Impact Statement)

flighted spongy moth complex. complex of moths comprised of *Lymantria* moths including *Lymantria dispar asiatica*, *Lymantria dispar japonica*, *Lymantria albescens*, *Lymantria umbrosa*, and *Lymantria postalba*

FONSI. abbreviation for Finding of No Significant Impact

Forest Service. Forest Service, a USDA agency, working in combination with PPQ to eradicate certain pests

free of. a consignment, field, or place of production without pests or a specific pest (in this case, spongy moth).

FS. abbreviation for the Forest Service

geographic information system (GIS). system designed to capture, store, manipulate, analyze, manage, and present spatial or geographic data

GIS. acronym for geographic information system

Global Positioning System (GPS). U.S.-owned utility providing users with positioning, navigation, and timing (PNT) services. In spongy moth survey, GPS is used to feed data into GIS

Golden Pest Spray Oil. emulsified soybean oil used to treat spongy moth egg masses to prevent their hatch

gypsy moth. *Lymantria dispar dispar*, now known as spongy moth (refer to APHIS Announces New Common Names for Regulated *Lymantria* Moths, December 14, 2022)

infestation. reproducing population in a given area

IPHIS. web-based application providing a single, standardized, and comprehensive data management system capable of supporting activities associated with APHIS–PPQ's domestic or emergency pest programs

isolated infestation. reproducing spongy moth population, typically occupying **no more than** a few hundred acres, located outside the quarantine area; isolated infestations are determined with a positive detection survey followed by a positive delimiting or egg mass survey

Limited Permit. official authorization (usually PPQ Form 530, issued by PPQ officers, State personnel, or CA holders) for moving regulated articles to a specified destination for treatment or processing

***Lymantria dispar dispar* (L.)**. scientific name for spongy moth

Lymantria dispar asiatica, Lymantria dispar japonica, Lymantria albescens, Lymantria umbrosa, and Lymantria postalba. scientific names for *Lymantria* moths included in flighted spongy moth complex

MB. abbreviation used for methyl bromide

methyl bromide. fumigation chemical used to treat spongy moth egg masses

mobile home. any vehicle **other than** a recreational vehicle, designed to serve, when parked, as a dwelling or place of business

monitoring. assessing compliance with the spongy moth regulation by reviewing activities required by CA

natural dispersal. dispersal occurring through natural means; for spongy moth, natural dispersal involves the short-distance movement of adult moths and the longer distance spread by windblown first-instar larvae

NEPA. acronym used for the National Environmental Policy Act of 1976 (refer to Guidelines for Environmental Documents)

noninfested area. area where a pest (in this case, the spongy moth) is **not** established

NPV. abbreviation used for nucleopolyhedrosis virus of spongy moth

OHA. abbreviation used for an outdoor household article

outdoor household article. item associated with a household that has been kept outside the home; e.g., outdoor furniture, barbecue grills, dog houses, boats, hauling trailers, garden tools, tents, awnings, and firewood

QCA. abbreviation for qualified certified applicator

QCA document. document used by a pest control operator who is certified by the State or the USDA for the interstate movement of OHAs

qualified certified applicator. individual who is a certified pesticide applicator under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) who can use the restricted pesticides recommended in this manual and has successfully completed a workshop approved by PPQ on identifying and treating spongy moth life stages

quarantine area. area within which a quarantine pest is present and is being officially controlled.

quarantine area. IPPC definition: area into which, within which, and/or from which plants, plant products, and other regulated articles are subjected to phytosanitary measures to prevent the introduction and/or spread of quarantine pests (in this case, spongy moth)

- **Spongy Moth Program Manual definition**: infested area from which plants, plant products, and other regulated articles are subjected to phytosanitary measures to prevent the introduction and/or spread of the spongy moth
- **quarantine area.** area in which spongy moth is established, i.e., maintaining a reproducing population

recreational vehicles. highway vehicles, including pickup truck campers, one-piece motor homes, and travel trailers, designed to serve as a temporary dwelling

regulated articles. include the following:

- Christmas trees (including holiday greenery)
- Logs (including firewood), pulpwood, bark, and bark products
- Mobile homes and associated items

- Nursery stock (trees with roots, shrubs with roots and persistent woody stems, **unless** they are greenhouse grown throughout the year)
- OHAs
- Any other products, articles, or means of conveyance posing a high risk of artificial spongy moth spread as determined by an APHIS employee or a State official

RV. abbreviation for recreational vehicle

Slow the Spread (STS). regional integrated pest management strategy aiming to minimize the rate of spongy moth spread into noninfested areas through comprehensive detection/delimiting survey data and a decision algorithm targeting treatment/trapping areas

spongy moth. *Lymantria dispar dispar,* Linnaeus, (Lepidoptera: Lymantriidae) a moth native to the Old World, having hairy caterpillars that feed on foliage and are very destructive to hardwood trees

transition area. area between the quarantine area and the noninfested area; because of natural dispersal, the area is in transition from noninfested to generally infested

- Populations are variable and discontinuous; mostly male moths will be detected and occasionally other life stages
- Population outbreaks do **not** occur and defoliation is uncommon

transition area survey. survey designed and conducted to monitor the transition area and provide data to support regulatory decisions

trap array. pattern of trap placement within an area

trap density. number of traps per unit of area

trapping frequency. how often an area is trapped

Vapona. insecticide-impregnated strip used to kill adult spongy moths caught in milk carton traps