



Plant Industries Division
West Virginia Department of Agriculture
1900 Kanawha Blvd. E., Charleston, WV 25305
304-558-2212

Walt Helmick
Commissioner

Eric Ewing
Director

West Virginia Department of Agriculture
Plant Industries Division
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2015 Activities

Plant Industries Division combats a wide array of native and non-native plant pests and diseases through extensive surveillance, regulatory and control programs, many as part of federal cooperative agreements. The division is broken down into two main program units: Agricultural Pest Survey and Forest Health Protection.

Agricultural Pest Survey (APS) Programs

Cooperative Agricultural Pest Survey (CAPS) Program

The CAPS program conducts surveys for insects, plant pathogens and injurious weeds in field crops to detect any new non-native plant pests and to monitor the impact of native agricultural pests. The program functions in a cooperative agreement with USDA-APHIS-PPQ on specific pest-control issues, supports export certification programs, and contributes data to the National Agricultural Pest Information System (NAPIS) and Integrated Plant Health Information System (IPHIS) computer databases.

- Released 5,000 Mile-a-Minute, *Rhynoncomimus latipes*, weevils at ten sites in four counties for biological control of mile-a-minute weed.
- Released 200 yellow toadflax, *Mecinus janthinus*, weevils at a location in Mineral County for biological control of yellow toadflax.
- Traps were set for *Adoxophyes orana* (summer fruit tortrix moth), *Autographa gamma* (silver Y moth), *Chrysodeixis chalcites* (golden twin spot moth), *Helicoverpa armigera* (old world bollworm) and *Spodoptera littoralis* (Egyptian cottonworm) and visual surveys conducted for *Alectra vogelii* (yellow witchweed) at 22 sites in 7 counties as part of a Soybean Commodity Survey. No positives were discovered.
- Traps were set for *Adoxophyes orana* (summer fruit tortrix), *Drosophila suzukii* (spotted wing Drosophila), *Epiphyas postvittana* (light brown apple moth), *Leucoptera malifoliella* (pear leaf blister moth) and *Lobesia botrana* (European grapevine moth) at 23 sites in 16 counties as part of a Bundled Berry Survey. No positives were discovered.
- Traps were set for *Dendrolimus pini* (pine tree lappet), *Dendrolimus sibiricus* (Siberian silk moth), *Hylobius abietis* (large pine weevil), *Lymantria mathura* (rosy moth), *Panolis flammea* (pine beauty moth), and *Tomicus destruens* (pine shoot beetle) and visual surveys were conducted for *Cronartium flaccidum* (Scots pine blister rust) at 50 sites in 27 counties as part of a Pine Commodity Survey. No positives were discovered.
- Traps were set at 31 sites in 18 counties for *Archips xylosteanus* (variegated golden tortrix), *Adoxophyes orana* (summer fruit tortrix), *Drosophila suzukii* (spotted wing drosophila), *Synanthedon myopaeformis* (apple clearwing moth), *Spodoptera litura* (cotton leafworm), and *Enarmonia formosana* (cherry bark tortrix) and visual

surveys were conducted for *Candidatus* Phytoplasma as part of an Apple Commodity Survey. No positives were discovered.

- Surveyed 32 nurseries for Sudden Oak Death, *Phytophthora ramorum*, collecting 249 foliar samples and six water samples for PCR analysis. All samples were negative.
- Provided health certificates for interstate movement of West Virginia seed potatoes.
- Traps were set at 7 sites in five counties for *Adoxophyes orana* (summer fruit tortrix), *Epiphyas postvittana* (light brown apple moth), *Enarmonia formosana* (cherry bark tortrix), *Lobesia botrana* (European grapevine moth) and *Thaumatotibia leucotreta* (false codling moth) as part of a Stone Fruit Commodity Survey. No positives were discovered.
- Surveyed for plum pox virus (PPV) in Berkeley, Hampshire and Monroe counties following National Plum Pox Survey Guidelines as part of the Stone Fruit Commodity Survey. A total of 500 samples were collected. All samples were negative.
- Traps were set at 11 sites in 10 counties for *Adoxophyes orana* (summer fruit tortrix), *Autographa gamma* (silver Y moth), *Epiphyas postvittana* (light brown apple moth), *Eupoecilia ambiguella* (European grape berry moth), *Lobesia botrana* (European grapevine moth) and *Thaumatotibia leucotreta* (false codling moth) as part of a Grape Commodity Survey. No positives were discovered.
- Staff presented invasive forest pest information on 62 occasions in 27 counties as part of a Forest Pest Outreach Project.
- Confirmed the presence of Emerald Ash Borer (EAB), *Agilus planipennis*, in 12 new Counties in West Virginia.
- Staff completed a permanent exhibit at the Clay Center for the Arts and Sciences in Charleston in order to educate the public about invasive forest pests.
- Collected and released approximately 200 *Galerucella* beetles from the Purple Loosestrife biocontrol rearing site in Buckhannon to a site in Clendenin for the biocontrol of this invasive weed.

Plant Pest Regulatory Program (PPRP)

The PPRP works to prevent the movement of plant pathogens on nursery stock produced in West Virginia and nursery products imported into the state. The program includes registration and annual inspection of nurseries and nursery dealers, and the enforcement of state plant quarantines and orders. The Gypsy Moth Slow the Spread Regulatory Program is also operated by the PPRP through a cooperative agreement with USDA-APHIS-PPQ. In addition, the PPRP certifies domestic and international shipments of plants and timber products.

- Registered 87 nurseries and 327 nursery dealerships. Conducted 115 nursery inspections and 34 nursery dealership inspections resulting in the stop sale or destruction of 262 pieces of nursery stock because of injurious plant pests, diseases or violations of state quarantines.
- Conducted inspections and issued 2,891 USDA-APHIS-PPQ phytosanitary certificates for international log, lumber or plant shipments.
- Visited 153 sites to investigate the movement of articles capable of transporting the gypsy moth into uninfested areas.
- Conducted 32 inspections at West Virginia plant vendors surveying for *Phytophthora ramorum* and collected 255 samples for testing. All samples were negative for *P. ramorum*.

Black Fly Control Program

The Black Fly Control Program has the responsibility of significantly reducing the black fly population in southeastern West Virginia without adversely affecting non-target aquatic organisms within the area of treatment. This is accomplished by monitoring black fly larval development in certain southern West Virginia river systems for the purpose of determining the optimum time to conduct black fly control operations. Suppression activities target problem areas of the New, Bluestone and Greenbrier Rivers.

- Supervised 16 aerial black fly treatments.
- Conducted 121 aquatic invertebrate monitoring trips.

Pest Identification Laboratory (PIL)

The PIL is a cooperative effort of the entomology and plant pathology staff. It complements the pest survey and detection efforts of the APS Unit by providing expertise in the identification of insects, plant diseases, weeds and other pests. The PIL also disseminates information on the pests identified and investigates problems considered significant from a biological, regulatory or impact standpoint. PIL personnel maintain permanent reference collections and record

systems of insects, plant diseases and weeds. Pest control recommendations are provided for private individuals, businesses and other government agencies when needed.

- Confirmed the presence of Emerald Ash Borer (EAB), *Agrilus planipennis*, in 12 new Counties in West Virginia: Marshall, Wetzel, Tyler, Marion, Harrison, Preston, Upshur, Grant, Pendleton, Cabell, Wayne and Monroe.
- Screened 271 trap samples for the presence of six exotic insect species for the Apple Commodity Survey. All samples were negative.
- Confirmed the presence of the Spotted Wing Drosophila (SWD), *Drosophila suzukii*, in one new County: Grant.
- Screened 96 trap samples for the presence of six exotic moth species for the Grape Commodity Survey. All samples were negative.
- Screened 330 trap samples from the Pine Commodity Survey for the presence of four exotic moth species, an exotic root weevil, *Hylobius abietis* and the Pine Shoot Beetle, *Tomicus destruens*. All samples were negative.
- Entered approximately 231 identified specimens into the Insect Museum's computerized database, making a total of 131,281 identified specimen records and added approximately 241 undetermined prepared specimens.
- Provided Insect Museum specimen loans and/or data base information and specialized insect identification requests for the Oregon Department of Agriculture, Florida Department of Agriculture, National Museum of Natural History (Smithsonian Institution), Ohio State University, Snow Museum at University of Kansas, University of New Hampshire, Washington State University, University of Nebraska, WV State University, WV Division of Natural Resources and WV Division of Health and Human Resources.
- Handled 674 pest calls, 287 pest specimens, and 49 literature requests. All pest specimen information was entered into the Northeast Plant Diagnostic Network database.
- Provided 11 youth educational programs, 11 adult educational programs, and one media interview on various arthropod and/or pest-related topics.

Forest Health Protection Programs (FHP)

Forest Insect and Disease Survey and Detection Programs

Insects

- Treated 2,268 hemlock trees for hemlock woolly adelgid. (724 trees on private lands for the HWA Cooperative Program; 1,370 trees on state lands).
- Conducted a hemlock woolly adelgid mortality study at Blackwater State Park.
- Treated 27 ash trees for emerald ash borer at Valley Falls State Park in Marion County.
- Released 500 *Laricobius osakensis* for biological control of hemlock woolly adelgid, at Coopers Rock State Park. The plan is to continue augmenting this population for purposes of establishing a viable colony at the site.

Diseases

- Conducted trapping for the walnut twig beetle (vector of Thousand Cankers Disease) to determine if the beetle is present in the state. Traps were set in high risk areas such as wood products locations, parks and campgrounds. A total of 77 traps were set and were monitored for four weeks in the spring and for three weeks in the fall. All samples were processed and screened by the forest pathologist and the Cooperative Forest Health Specialist. To date, all samples are negative for WTB.
- Located approximately 60 putative resistant beech trees marked by Forest Service personnel and conducted beech scale challenges on these trees and susceptible control trees.
- Established a beech orchard in Parsons, WV consisting of 10 trees resistant to beech bark disease (BBD). More resistant beech trees will be added to the orchard in coming years, in hopes that the beech resource will be restored with trees genetically resistant to BBD.
- Processed numerous samples submitted by WVDA personnel for the *Phytophthora ramorum* Nursery Survey and the Stone Fruit Commodity Survey. Also processed various samples submitted by forest health specialists and the public using various diagnostic tools such as: PCR, ELISA, culturing, and microscopy.
- Received certification through USDA-APHIS-PPQ-CPHST to perform USDA-APHIS-PPQ validated diagnostic tests for *Phytophthora ramorum* and Plum Pox Virus.

Gypsy Moth Program

The West Virginia Department of Agriculture (WVDA) Gypsy Moth Program is the largest Forest Health Protection (FHP) program under the WVDA. It is divided into two parts; the Gypsy Moth Cooperative Suppression (GMCS) and Slow the Spread (STS) Programs, both of which are carried out in cooperation with the USDA-FS. Under the GMCS Program umbrella with the USDA-FS, the WVDA conducts the Cooperative State-County-Landowner (CSCL) Program in the generally infested area of the state. The STS Program operates in the transition zone between the leading edge of the main infestation and the uninfested zone where adult males are only occasionally found.

The West Virginia Department of Agriculture has two objectives in its Gypsy Moth Program; first, to retard the spread of the pest into uninfested areas of the state through the Gypsy Moth Slow the Spread (STS) Program and, second, to suppress gypsy moth populations in infested areas to limit, as much as possible, defoliation and tree mortality through the WVDA Gypsy Moth Cooperative State County Landowner (CSCL) Program. The WVDA Gypsy Moth Program minimizes the adverse impact on West Virginia's forest resources; we preserve aesthetic values, and protect people from the annoyance and health problems that can occur when in contact with large numbers of gypsy moth caterpillars.

GMCS Accomplishments:

- FHTET Forest Disturbance Mapper and ground observations were used to survey for gypsy moth defoliation. Approximately 99,878 acres were defoliated by gypsy moth.
- Ground surveyed 327,458 acres of private and state lands in West Virginia signed up by landowners and managers.
- Completed gypsy moth treatments on 6,691 acres in five counties: Grant, Hardy, Mineral, Pendleton and Pocahontas.
- Set up and manned multiple gypsy moth displays at local county fairs and published multiple gypsy moth articles.
- Presented numerous gypsy moth invasive species presentations at schools, clubs, and campgrounds.

STS Accomplishments:

- Trapped 30,998 male gypsy moths in 2015, compared to 29,149 male moths in 2014.
- Placed 3,777 gypsy moth traps.
- No Treatments were proposed for 2015
- Set up and manned displays at The WV Hunting and Fishing Show and the WV Sport Show.

Geographic Information System (GIS) Support

The Geographic Information System (GIS) Specialist supports all Plant Industries Division programs.

- Provided computer systems operation and data management support, as well as map production for male gypsy moth detection surveys, gypsy moth and other forest defoliator surveys and forest pest suppression operations.
- Provided data management support, as well as map production and GIS analysis for FHP and CAPS surveys, reports and presentations.
- Provided spatial data management and maps for NPDES permit process.
- Utilized the USDA-FS Forest Disturbance Monitor to ground survey 754,688 acres and map 751,928 acres of forest disturbances statewide.