



Plant Industries Division
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West Virginia Department of Agriculture
Plant Industries Division
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2016 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 4,000 *Rhynoncomimus latipes* weevils at eight sites in 4 counties (Grant, Hampshire, Mineral & Tyler) for biological control of mile-a-minute weed.
- Collected and re-released 625 *Rhynoncomimus latipes* weevils at five sites in 2 counties (Hampshire & Mineral) for biological control of mile-a-minute weed
- Released 800 *Mecinus janthinus* weevils at two locations in Pendleton County for biological control of yellow toadflax.
- Traps were set at 21 sites in 7 counties for five insect pests and visual surveys were conducted for one invasive weed as part of a Soybean Commodity Survey. No positives were discovered.
- Traps were set at 20 sites in 17 counties for five insect pests as part of a Bundled Berry Survey. One new positive site was recorded for *Drosophila suzukii* (Spotted Wing Drosophila) and one new find of the non-target *Autographa californica*.
- Traps were set at 51 sites in 30 counties for five insect pests as part of an Asian Defoliators Survey. No positives were discovered.

- Traps were set at 14 sites in 13 counties for six insect pests and visual surveys were conducted for two fungal pathogens as part of a Corn Commodity Survey. No positives were discovered.
- Traps were set at 12 sites in 8 counties for seven insect pests as part of the Solanaceous Commodity Survey. No positives were discovered.
- Surveyed 30 nurseries in 23 counties for Sudden Oak Death (*Phytophthora ramorum*) collecting 303 foliage samples and six water samples for PCR analysis. All samples were negative.
- Traps were set at 21 sites in 17 counties for five insect pests and visual surveys were conducted for one invasive insect as part of the Oak Commodity Survey. An Oak inventory was also conducted at each of the 21 sites and data was recorded for 40 trees including Host species, GPS location, and DBH. Visual surveys for general symptoms of the target pests were also conducted. No positives were discovered.
- Staff presented invasive forest pest information on 47 occasions in 20 counties as part of a Forest Pest Outreach Project.
- 192 samples were collected at 24 apiaries in 23 counties for the National Honey Bee Survey. Samples were tested for 5 viruses, 2 fungi, 2 invasive insects and 3 mites. Sample results are pending at this time.
- Provided health certificates for interstate movement of West Virginia seed potatoes.
- Confirmed the presence of Emerald Ash Borer (EAB), *Agrilus planipennis*, in 2 new Counties in West Virginia.

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. The WV Apiary program is housed in PPRP in addition to the Industrial Hemp Research and Development Program.

- Registered 87 nurseries and 368 nursery dealerships. Conducted 110 nursery inspections and 78 nursery dealership inspections resulting in the stop sale or destruction of 133 pieces of nursery stock because of injurious plant pests, diseases or violations of state quarantines.
- Conducted inspections and issued 2,735 USDA-APHIS-PPQ phytosanitary certificates for international log, lumber or plant shipments.
- Visited 61 sites to investigate the movement of articles capable of transporting the gypsy moth into uninfested areas.
- Conducted 30 inspections at West Virginia plant vendors surveying for *Phytophthora ramorum* and collected 312 samples for testing. All samples were negative for *P. ramorum*.
- Distributed seed to 7 WV growers to participate in WV's Industrial Hemp Program.
- Registered 1,282 beekeepers with 13,492 colonies and 1,838 apiaries in WV. Inspected colonies destined for other states due to sales or pollination.

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 6 aerial black fly treatments. (Lack of funding shortened the treatment season significantly.)
- Conducted 134 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 2 new Counties in West Virginia: Taylor and Barbour, making a total of 52 Counties infested.
- Screened 183 trap samples for the presence of five exotic moth pests for the Asian Defoliator Survey. No target pests were found.
- Screened 125 trap samples for the presence of five exotic moth pests for the Soybean Commodity Survey. No target pests were found.
- Screened 109 trap samples for the presence of four exotic moth pests and the Spotted Wing Drosophila (SWD) for the Berry Commodity Survey. One site was positive for SWD, but was not a County record. No target moth pests were found.
- Screened 53 trap samples for the presence of six exotic moth pests for the Corn Commodity Survey. No target pests were found.
- Screened 119 trap samples for the presence of five exotic moth pests for the Oak Commodity Survey. No target pests were found.
- Screened 83 trap samples for the presence of seven exotic moth pests for the Solanaceous Commodity Survey. No target pests were found.
- Entered approximately 460 identified specimens into the Insect Museum's computerized database, making a total of 131,601 identified specimen records and added approximately 495 undetermined specimens into the Museum.
- Provided Insect Museum specimen loans and/or data base information and specialized insect identification requests for the Oregon Department of Agriculture, Mississippi Entomology Museum, Carnegie Museum of natural History, Snow Museum at University of Kansas, West Virginia University, Marshall University, Archbold Biological Station, USFS, USDA-APHIS-PPQ, CDC, and WV Division of Natural Resources.
- Handled 693 pest calls, 255 pest specimens, and 35 literature requests. All pest specimen information was entered into the Northeast Plant Diagnostic Network database.
- Provided 10 youth educational programs, 5 adult educational programs, and 8 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 550 hemlock trees for hemlock woolly adelgid on state lands.

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 30 traps were set and were monitored for four weeks in the spring and a total of 59 traps were set and monitored for four 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.
- Conducted 37 beech scale challenges on putative resistant beech trees and susceptible control trees.
- Processed numerous samples submitted by WVDA personnel for the *Phytophthora ramorum* Nursery 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.

Forest Health Surveys

- In 2016, the West Virginia Department of Agriculture (WVDA) continued using the Forest Disturbance Monitor to identify, survey, collect, and report large forest disturbances across the State. This application has replaced traditional aerial surveys for finding defoliation. In addition, WVDA began using GPS-enabled tablets with digital data forms and maps in 2015 to improve data collection and survey methods. A total of 170,636 acres were reported showing some type of damage, and all areas were verified by site visits.

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 92,686 acres were defoliated by gypsy moth.
- Ground surveyed 218,507 acres of private and state lands in West Virginia signed up by landowners and managers.
- Completed gypsy moth treatments on 12,156 acres in five counties: Grant, Hardy, Pendleton, Pocahontas and Summers.
- 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 34,060 male gypsy moths in 2015, compared to 30,998 male moths in 2014.
- Placed 3,837 gypsy moth traps.
- No Treatments were proposed for 2016
- 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.

- Provided mapping and database support for Apiary Unit
- Provided spatial data management and maps for Industrial Hemp Program
- Established GPS enabled tablet data collection strategies, protocols, and data forms for all PID programs.
- Provided analysis and maps for the Forest Health Section of the West Virginia Forest Action Plan