

2008 Supplemental Gypsy Moth Control Program
in
Frederick County, Maryland



(The beginning of defoliation on College Mountain, Emmitsburg 5-13-07)

Submitted by:

Frederick County Gypsy Moth Task Force

September 11, 2008

Summary

Gypsy moth (*Lymantria dispar*) first impacted Frederick County during the mid 1980's when the leading edge of defoliation occurred in our county. Over the years gypsy moth populations fluctuated depending on a number of environmental factors with periods of increased activity and severe defoliation followed by times when the moth was not active at all. The most recent up-cycle began in 2007 when 5,500 acres were defoliated throughout the county. Following this damage, during the autumn of 2007 it became apparent that gypsy moth numbers were on the rise; and, it was projected that nearly 43,000 acres of defoliation was expected during the spring of 2008. This anticipated defoliation, combined with the 2007 damage, and existing drought conditions suggested a grim state of affairs where thousands of acres of tree mortality could potentially occur. The loss of substantial canopy would result in significant environmental and economic impacts to private landowners, Frederick County, and the State of Maryland as a whole. The potential monetary loss to society could be as high as \$338,018,600. (See Valuation Section) Given the sheer magnitude of this problem it became apparent that the normal suppression program administered by the Maryland Department of Agriculture would not be adequate to control all of the gypsy moth numbers and that a "supplemental program" would be necessary to ensure that properties that were at risk of being defoliated had the opportunity to be protected.

The original Supplemental Program included a cost share component through the EQIP program to reimburse qualifying landowners at \$30/acre. To be eligible the landholding had to be greater than 10 acres in size and have a Forest Stewardship plan prepared for the property. This funding was retracted shortly after it was announced putting the suppression initiative in a state of flux. The supplemental program went through a number of changes until it was completely revamped by the Frederick County Gypsy Moth Task Force and solidified when the Frederick County Commissioners provided funding of \$150,000 to supply 40% cost share assistance to qualifying landowners. It should be noted that a nearly 60% increase in participation (nearly 5,000 acres) occurred after the cost sharing was made available.

In its final form the Supplemental Program became a partnership between the individual landowner, Gypsy Moth Task Force, MD Department of Agriculture, MD Department of Natural Resources, Frederick County Government, Frederick Forestry Board, Parkton Woodland Services, and Ag-Air Aviation. The final supplemental program treated qualifying properties i.e. (Any property or group of properties in gypsy moth infestation zones that were greater than 10 acres in size.) with Confirm insecticide. The final cost to landowners ranged from \$17.00 - \$30/ acre depending upon the size of the spray block. Spraying commenced on May 5, 2008 in the southern part of the county (as determined by leaf expansion and larval stage of the caterpillar) and concluded on May 23, 2008 on Mink Farm Road. Despite a number of obstacles relating to the rainy weather, rate of leaf expansion around the county, air traffic congestion, and restrictions in the No-Fly

zones, we were able to complete the spraying in timely manner. Employing criteria developed by the MD Department of Agriculture; Parkton Woodland Services and the MD Forest Service served as monitors for the spray program deciding when to initiate and conclude spraying on a daily basis, along with recording spray weather conditions and gypsy moth developmental information. Ag-Air Aviation mapped their spray patterns on Ag.Nav.1 software and made it available to any patron who requested this information. Ag-Air, Parkton, and the Forest Service conducted some follow-up monitoring after the spraying was completed.



Spraying begins at Sugarloaf Mountain.

The Supplemental Program treated 8,200 acres on 300 separate land holdings throughout the county. This total along with lands sprayed by MDA, National Park Service, and other entities allowed nearly 32,000 acres to be sprayed throughout the county. Aerial defoliation surveys conducted by MDA during the summer of 2008 (Following the gypsy moth activity period.) identified 8,203.0 acres of defoliation throughout Frederick County. Of that total, 4,494.0 acres consisted of moderate defoliation (30% - 60%) and 3,709.0 was heavy defoliation (> 60% canopy). The 8,203 acres of defoliation was 19% of the 43,000 acres of severe defoliation that had been projected. As such, we were able to protect 81% of our forests from defoliation by virtue of the countywide suppression efforts. This survey also illustrated that 410 acres or 5% of the acreage in the supplemental program had been defoliated so that the supplemental program protected 95% of the 8,200 acres that were treated.



Trees being defoliated outside Thurmont on 6-16-08. The trees retaining their leaves in the background were part of a 12 acre spray block in the supplemental program.

The successes and failings of this program were discussed at length by Gypsy Moth Task Force members and contractors at a critique of the program on July 16, 2008. Most thought that the program was very successful, much better than we had envisioned given this was our initial attempt. Also, given the 2007 prediction of 43,000 acres of significant defoliation, the fact that we experienced less than 4,000 acres of heavy defoliation countywide, and 8,200 acres anticipated vs. 410 acres actual defoliation in our spray block was proof that the spraying was indeed very effective. The fact that we developed a successful program targeting those areas in need of suppression at a relatively affordable cost to landowners made us feel that our time and effort was well spent. Some points that need refinement had to do with the administration of the program and, the “edge effect” defoliation that occurred resulting in 5% defoliation in spray blocks. Providing a single point of contact, additional trainings and public input meetings, and developing larger and more uniform spray blocks would help alleviate some of these shortcomings.



Late stages of larval development; the caterpillar on the left is suffering from NPV virus.

The remainder of the report overviews the way the program functioned, benefits of the spraying, and offers some suggestions for the development of a 2009 spray program if it is indeed necessary. We have also included three maps of the spray blocks located in Northern Frederick County, Central Frederick County, and Southern Frederick County. These maps illustrate where spraying took place; and, where defoliation was observed during a July aerial survey conducted by the MD Department of Agriculture. It should be noted that our program targeted areas of high population levels the so called “Red Zones” developed by the MD Department of Agriculture during the fall of 2007. These targeted areas were mostly located in the mountainous areas west of Rt. 15.

Members of the Gypsy Moth Task Force would like to thank all the individuals who were involved in this program. In particular we would like to thank the Frederick County Commissioners who had the foresight and conviction to appropriate the funding necessary to make suppression costs affordable to most county residents.



The truck was used to refill the spray tank, helicopters land on the top deck where the filling occurs.



Spraying on Gambrill Park Road.

How the Supplemental Program Functioned

- I. Results of the MD Dept of Agriculture's gypsy moth egg mass survey provided population estimates and locations of areas that were susceptible to defoliation.
- II. Using this information we notified landowners of the impending problem with direct mailings, phone calls, newspaper articles, trainings, and public information meetings.
- III. Landowners could apply for the program by contacting the MD Forest Service or a private landowner who took the lead as a spray block coordinator. (Many of these spray block coordinators volunteered to serve as members of the Gypsy Moth Task Force.)
- IV. The MD Forest Service compiled a spread sheet of various applicants and created GIS maps of each property.
- V. The recently formed Frederick County Gypsy Moth Task Force developed the specifications for spraying and retained Parkton Woodland Services to act as a liaison between the applicator and private landowner. Bids were solicited and Ag-Air Aviation was hired to function as the applicator, applying Confirm Insecticide at 5oz/gal/acre and Penetrator Plus as the surfactant.
- VI. The Frederick County gypsy moth informational web page was created and daily updates were posted by web master John Brognard who is a member of the Task Force.
- VII. Parkton Woodland Services acted as an agent between the various landowners and the spray contractor Ag-Air Aviation. This entailed creating a contract between the landowners and Parkton. Parkton submitted contracts to the landowners along with an invoice for \$50 for their fee to administer the program. The Maryland Forest Service provided the lists of interested landowners to Parkton.
- VIII. Parkton compiled a list of applicants who paid the fee and returned a signed contract. Parkton then worked with the MD Forest Service to determine the size of spray blocks based on the submission of the signed contract.
- IX. Parkton Woodland Services worked with Frederick County Budget Office to administer the County cost share monies. This involved determining the cost share payment to each landowner, and final cost of the spraying to each landowner. Once determined, Parkton sent a final invoice to the landowner for the balance of the payment.
- X. Once the list of participating landowners was finalized Parkton entered into a contract with Ag-Air LLC as the agent representing the landowners. Payments were made to Ag-Air LLC (1/3 down, 1/3 at start, final payment when spraying was complete.
- XI. Parkton Woodland Services met with Ag-Air Aviation to observe the calibration of spray equipment.

- XII. Ag-Air applied for, and received clearances to enter restricted air space in P-40 (Camp David) and the ADIZ no-fly zone around Washington D.C. Ag-Air also purchased all of the insecticide, surfactant, and identified the landing zones.
- XIII. The MD Department of Agriculture converted the final GIS Maps to Ag-Nav.1 files and sent them to Ag- Air Aviation.
- XIV. Parkton Woodland Services and MD Forest Service functioned as spray facilitators recording spray weather, notifying landowners, and coordinating spray blocks with Ag-Air and Task Force members.
- XV. Ag-Air commenced spraying on May 5, 2008 in Urbana. The last day of spraying was May, 23 2008 on Catoctin Mountain near Mink Farm Road.

TOTALS for Supplemental Program

Acres Sprayed in supplemental program: 8,200 acres

Acres in the program that were defoliated: 410 acres (5% of total)

Total Landowners Involved in Supplemental program: 300 landowners

Final Cost to Landowners: \$17.00 - \$30 per acre depending on spray block size

Lineal feet of riparian forest buffer protected through program: 81,290' or 15.05 miles

Estimated acreage of buffer protected: 203.23 acres

Estimated value of buffer: \$406,450 (assume establishment cost of \$2,000/acre)

Major Stream Corridors Protected through program:

North: Toms Creek, St. Mary's Run, Turkey Creek, Friends Creek, Owens Creek, Little Owens Creek, Buzzard Branch, Beaver Branch, Hunting Creek, Little Hunting Creek,

Central: Middle Creek, Fishing Creek, Little Fishing Creek, Clifford Branch, Boot Jack Springs, Tuscarora Creek, Carroll Creek, Catoctin Creek, Little Catoctin Creek, Frostown Branch, Grindstone Run, Bolivar Branch

South: Bear Branch, Furnace Branch, Monocacy River, Bennett Creek, Little Bennett Creek, Urbana Branch

Valuation

To evaluate the “success” of this program it would be helpful to quantify the value of retaining the integrity of the 8,200 acres of forestland. As we all know our forests provide many environmental and economic benefits to society. The following values were addressed and calculated using standardized methods of valuation for forests in the Chesapeake Bay Watershed.

Estimated removal of Nitrogen and Phosphorus in 203.23 acre buffer: 4,267.83 lbs. Nitrogen, 812.92 pounds of Phosphorus, 21,182.29 lbs of sediment. (Virginia Tech Study)

Estimated value of forest for water quality: \$3,001,200
Estimated value of timber protected: \$32,800,000
Estimated value of landscaping protected: \$3,000,000
Estimated recreational value protected: \$1,074,200
Estimated value of biodiversity retained: \$2,501,000
Estimated value of carbon sequestration (Carbon Credits): \$106,000
Estimated value of forests in air pollutant removal: \$3,321,000
Estimated value of forests in storm water control: \$289,214,000

Total Estimated Value of retaining 8,200 acres of forest in tact: \$338,018,600

(These values were derived from multiples found in Chapter #6 of The State of Chesapeake Forests entitled The Economics of Chesapeake Forests.

www.na.fs/watershed/pdf/socf.us

Time Line for Gypsy Moth Supplemental Program

- I. October 2007: Original Suppression program developed using EQIP funding. The funding was rescinded soon there after.
- II. November 2007: Gypsy moth Training program and Public Hearing conducted.
- III. January 2008: Gypsy Moth Task Force developed and approves the details of the final program. 40% cost share funding approved by Frederick County Commissioners. Parkton Woodland Services and Ag-Air Aviation hired to administer program and conduct spraying.
- IV. February – April 2008: Applications made for program.
- V. May 2008: Spraying conducted from May 5, 2008 until May 23, 2008.
- VI. July 2008: Spray Program Critique.

2009 Supplemental Program

As part of the 2008 critique the Gypsy Moth Task Force discussed whether or not we will be involved in a 2009 Supplemental Program. It was the consensus of the group that should the need arise we will reprise the supplemental program. The first step will be to determine the need for spraying by monitoring the results of the MD Department of Agriculture's gypsy moth egg mass surveys. Once we have a better idea of the threat and the potential reach of the 2009 MDA spray program we can decide how to best be of service to our county.

The Task Force thought the 2008 program went as well as could be expected but they thought some improvements could be made regarding continuity of the program. We thought that the basic partnership of Landowner – Administrator – Spray Applicator was good and decided to retain this model. Some suggestions for improvement would be to adopt letterhead and have the Administrator conduct all of the mailings and have one return address. The group should also adopt a unified application procedure along with more concrete time deadlines. The Task Force should endeavor to hire the Administrator and Spray Applicator as soon as possible so as to solidify the pricing and application procedures. The Task Force thought that holding a training session and a number of regional public informational meetings would be a good way to notify landowners and make the program more cohesive. The Maryland Forest Service and Maryland Department of Agriculture can still be viewed as technical resources for this program.

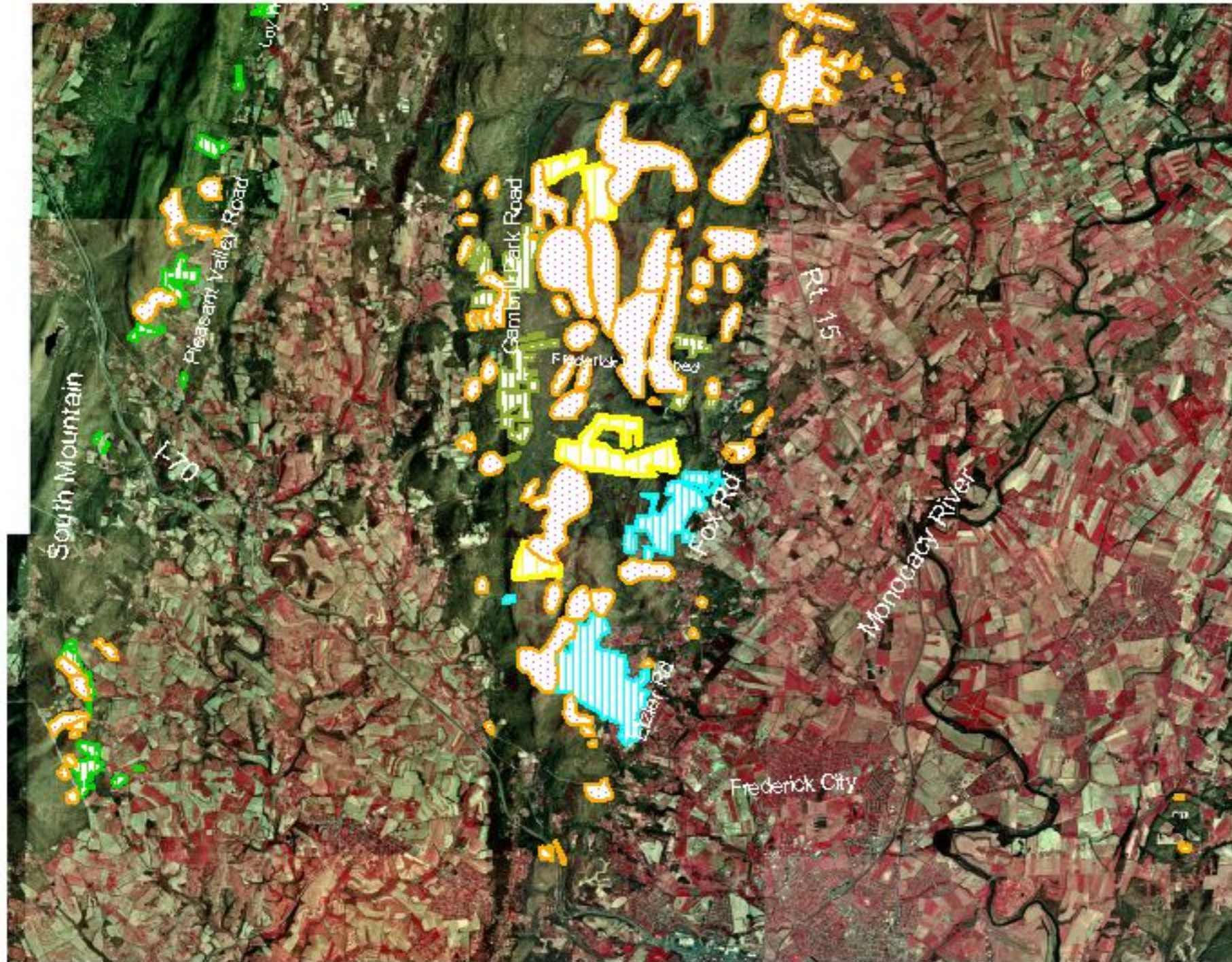
The Task Force will try to keep the public informed by renewing the web site and acting as a liaison with local officials.

2008 Frederick County Gypsy Moth Task Force

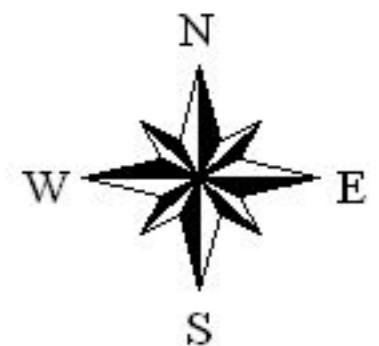
Alison Hegamyer: Etzler Road Spray Block Coordinator
Jane Sachs: Thurmont/Sabillasville Spray Block Coordinator
Joyce McKeough: Gambrill Park Road Spray Block Coordinator
Judy Lingg: Thurmont, Emmitsburg, Sabillasville Spray Block Coordinator
Michael West: Thurmont, Emmitsburg, Sabillasville Spray Block Coordinator
Tom Lupp: MD Department of Agriculture
Paul Tower: Fox/Putman Road Spray Block Coordinator
Lynne Marquess: Frederick County Forestry Board/ Sugarloaf Mountain Coordinator
John Brognard: Middletown Spray Block Coordinator/Webmaster for Gypsy Moth Site
Michael Kay: Maryland Forest Service

The Frederick County Gypsy Moth Task Force was created to provide some unity and direction for the development of the 2008 spray program. Many members of this task force are private landowners who accepted leadership roles in notifying landowners and developing spray blocks. Task Force members also helped develop the suppression program and hired the paid contractors. The Task Force played an influential role in administrating trainings and public input meetings, notifying elected officials of the impending problem, developing an informative web site, assisting with ground support during the spraying, and providing feedback on the program. Task Force members helped prepare this report and will work together to develop the 2009 version of this program if necessary.

Central Frederick County

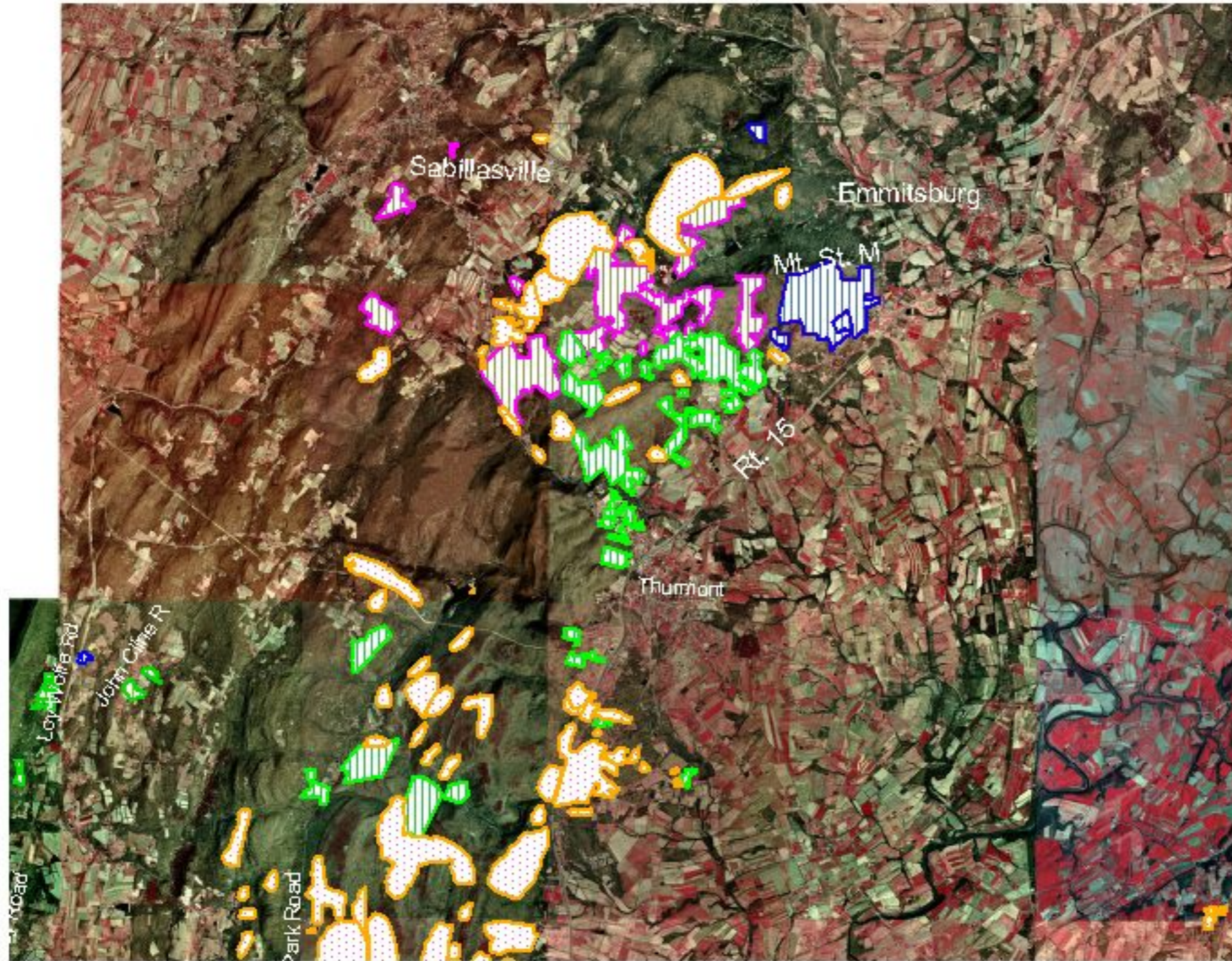


-  2008 Defoliation
-  Yellow springs
-  South mountain
-  Gambrill Park
-  Frederick watershed

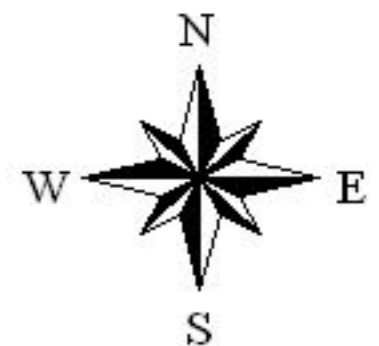


2008 Supplemental Spray Program

North Frederick Co.

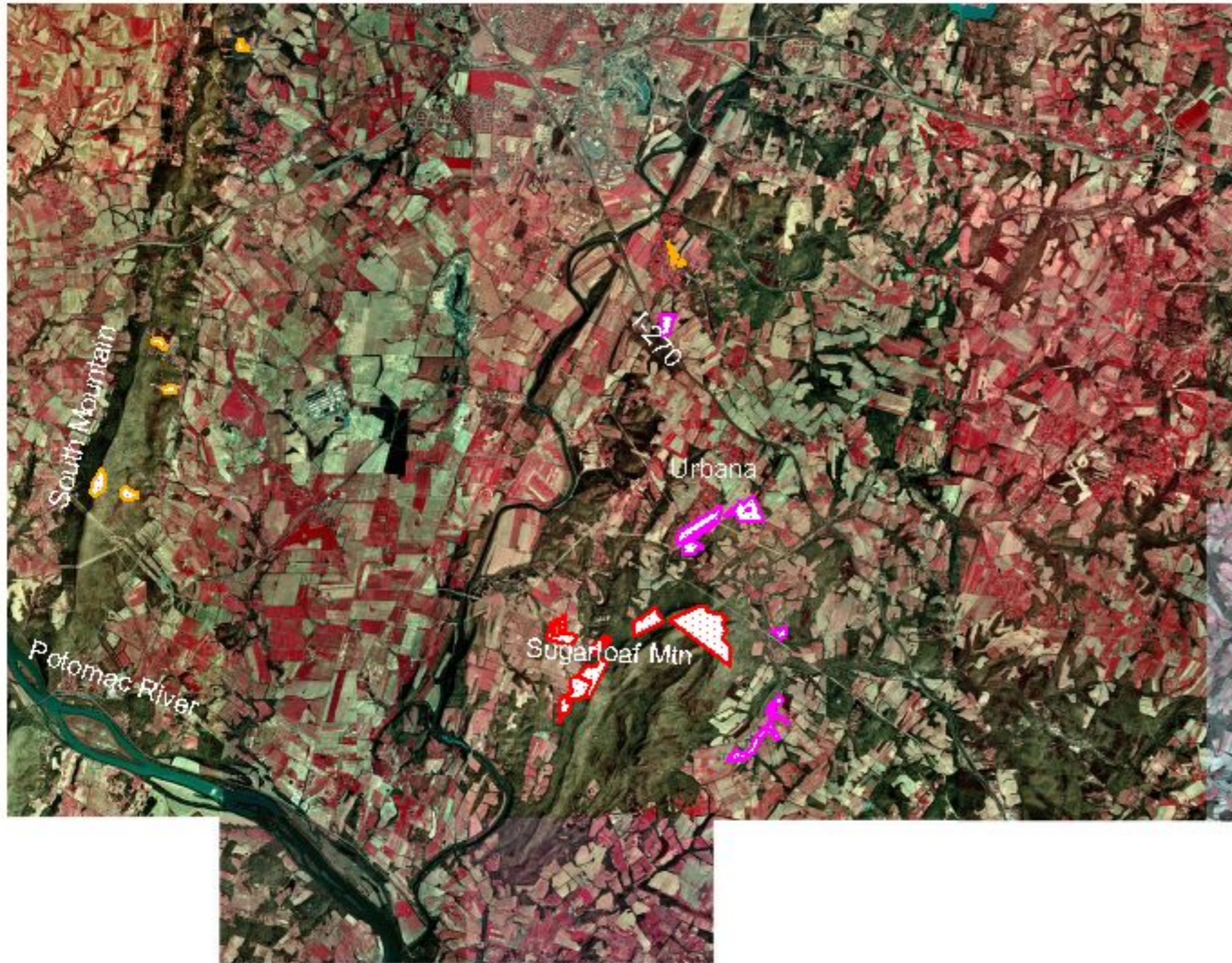





-  2008 Defoliation
-  South mountain
-  Thurmont
-  Smithsburg
-  Sabillasville
-  Lewistown
-  Emmitsburg

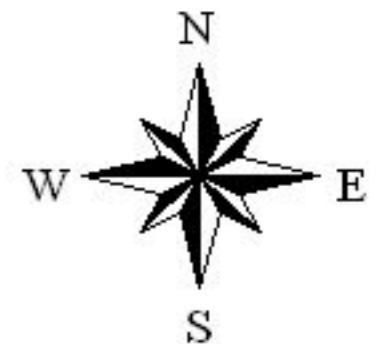


2008 Supplemental Spray Program

Urbana Region /Lower South Mtn



-  Urbana spray block
-  2008 Defoliation
-  Sugarloaf mtn



Supplemental Spray Program