



# 2023 Forest Pest Annual Report

Department of Public Works and Environmental Services

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## Introduction

The Forest Pest Branch of the Urban Forest Management Division (UFMD) is tasked by the Fairfax County Board of Supervisors to monitor for, provide necessary and effective control of, and offer outreach and education about several forest insect pests and diseases. This report describes work completed by staff in 2023 including monitoring, inventories, treatment, and education/outreach. Of the eleven (11) insects, diseases and animals monitored by UFMD, seven (7) of them are found in Fairfax County (County). Four (4) of those are the subject of more complex monitoring and management efforts. Spotted lanternfly (SLF) became established over most of the County in 2023. Work continues to deal with the aftermath of emerald ash borer (EAB). Hemlock woolly adelgid (HWA) management resulted in the 1000<sup>th</sup> tree treated, as well as successful recovery of a predatory beetle released in 2022. Staff continue diligently scouting for symptoms of beech leaf disease (BLD) and were able to document significant spread of infestations first found in 2022.

## Asian Longhorn Beetle

### Background Information

The [Asian longhorned beetle](#) (ALB) (*Anoplophora glabripennis*) is an invasive, wood-boring beetle with the potential to have drastic economic and social impacts should it be introduced in the County, much like the EAB. These pests infest many hardwood tree species but prefer maple species, one of the predominant trees in the County's urban forest ecosystem. If ALB is found in the County, staff would work with state and federal partners to eradicate the infestation.



*Kenneth R. Law, USDA APHIS PPQ, Bugwood.org*

### Description of work completed

Staff conducted field surveys at sites that are the most likely pathways for the introduction and spread of ALB in the County (Figure 1). All industrial areas where there is commercial shipping or movement of wood related products were targeted. Since traps are ineffective at capturing ALB, staff relied on visual inspection of trees. At each survey site staff inspected all maple trees within a 1/40-acre plot for signs of ALB such as exit holes and frass. Over 60 sites and 200 trees were visually inspected in this manner. Additional data was gathered on the type of business activities in the vicinity of the survey site for planning future surveys.

Staff continued to investigate new methods to monitor high risk areas for ALB introduction. The ALB Management Plan and County website were updated to reflect new information.

## Results of monitoring

No signs of ALB were found in 2023.

## Beech Leaf Disease

### Background Information

[BLD](#) is a new disease caused by the microscopic roundworm, or nematode (*Litylenchus crenatae*). The nearly 100% fatal disease to one of the most common and ecologically important tree species in the County is spreading quickly, and at the time of this report there is no known safe treatment option for forested environments. BLD will become more noticeable to the public and media attention is expected to increase in 2024.



*Signs of BLD*

### Description of work completed

Staff is monitoring BLD in the County using GPS and GIS technologies. This summer, beech stands known to UFMD staff and the Fairfax County Park Authority (FCPA) were mapped and surveyed for signs of BLD (Figure 2).

Staff is participating in a long-term U.S. Department of Agriculture (USDA) Forest Service beech health study that includes both BLD and beech bark disease assessments over the full geographic range of those two diseases. Four permanent monitoring plots in the County were established in beech stands where BLD has already been found or where it is likely to be found (Figure 2). Detailed data on the plot locations, forest composition, and incidence of BLD signs and symptoms were collected and will continue to be collected annually for this study.

Staff actively sought to participate in research projects to gain knowledge about the disease, how it spreads, and what safe management measures may work in a future integrated pest management (IPM) plan. Staff contributed BLD samples for a regional nematode DNA study out of the University of Connecticut.



*Staff establishing a BLD monitoring plot*

### Results of monitoring

Six (6) infestations totaling 60 acres were mapped in regional and County parks. Their severity was assessed and recorded. Areas found in 2022 have grown in size and severity. For example, the BLD infestation at Burke Lake Park grew from 4.3 acres in 2022 to 13.2 acres in 2023. Four (4) new sightings of BLD found on only one branch or on one tree were mapped on public and private properties (Figure 2).

## Cooperative Agricultural Pest Survey

The federal Cooperative Agricultural Pest Survey (CAPS) Program's mission is to conduct exotic plant pest surveys through a national network of cooperators and stakeholders to protect American agriculture and natural resources. The goal is to provide a survey profile of potential invasive plant pests in the United States deemed to be of regulatory significance through early detection and surveillance activities. Using various traps and visual surveys, Forest Pest staff monitors pests of concern that are generally not yet known to be present in the Eastern United States. Specific pests monitored in the County are detailed below.

### Oak Ambrosia Beetle

#### Background information

Oak ambrosia beetle (OAB) (*Platypus quercivorus*) is a small woodboring beetle of concern globally because of its potential to spread a serious fungal disease, Japanese oak wilt, (*Raffaelea quercivora*) to various oak species. The County has a high density of potential hosts, according to USDA-Animal Plant Health Inspection Service (APHIS) and could see significant financial and environmental impacts if OAB were to become established.

If OAB is found in the County, staff will work with the Virginia Department of Agriculture and Consumer Services (VDACS) and other partners to attempt to manage the threat and reduce the spread of this pest and disease. Staff will monitor OAB and implement an outreach component to educate private and public groups about OAB and the potential spread of disease.



OAB, Joseph Benzel, Screening Aids, USDA APHIS PPQ, Bugwood.org

#### Description of work completed

Staff continued to conduct a monitoring program for OAB. Ten (10) traps using a pest specific lure (querciverol) were deployed and checked weekly (Figure 3). Each trap was checked approximately 18 times throughout the field season, and all samples were sorted for possible OAB. Any possible OAB were sent for identification by Virginia Tech.

Staff provided outreach for residents on causes of oak decline including OAB and methods for protecting oak trees on their properties.

Staff investigated new control methods for OAB, including the use of biological controls.

#### Results of monitoring

OAB was not detected in trap samples collected in the County in 2023.

#### Redbay Ambrosia Beetle

##### Background information

Redbay ambrosia beetle (RAB) (*Xyleborus glabratus*) is a small woodboring pest that can transmit the laurel wilt fungus (*Raffaelea lauricola*) to sassafras and spice bush, both commonly found in the County. These potential hosts are important deer resistant understory trees and shrubs.

If RAB is found in the County, staff will work with VDACS and other partners to attempt to manage the spread of this pest and disease. Staff will monitor for RAB and implement an outreach component to educate private and public groups about RAB and the potential spread of disease.



Lateral view of an adult female RAB, *Xyleborus glabratus* Eichhoff. Photograph by Lyle J. Buss, University of Florida.

### Description of work completed

Staff initiated a monitoring program for RAB. Five (5) traps using a pest specific lure (alpha-copaene) were deployed and checked weekly (Figure 3). Each trap was checked approximately 18 times throughout the field season, and all samples were sorted for possible RAB. Any possible RAB were sent for identification by Virginia Tech.

Staff investigated new control methods for RAB, including the use of biological controls.

### Results of monitoring

No RAB were detected in trap samples collected in the County in 2023.

## Sudden Oak Death

### Background information

[Sudden oak death \(SOD\)](#), caused by the water-borne pathogen *Phytophthora ramorum* could pose a threat to oak trees in the County if it were to become established. If *P. ramorum* or SOD is found in the County, staff will work with VDACS and other partners to attempt to manage its spread.

### Description of work completed

Staff continued to monitor 15 stream sites once in the spring, and again in the fall (Figure 3). A total of 30 water samples were collected, incubated in-house, and shipped to the VDACS laboratory in Richmond for disease testing.

Staff continued to stay up to date on current research and maintained a management plan for SOD.



*Collection bottle and rhododendron leaf sample for sudden oak death monitoring*

### Results of monitoring

No samples tested positive for *P. ramorum* (SOD).

## Thousand Cankers Disease

### Background information

Thousand cankers disease (TCD) is caused by a fungus (*Geosmithia morbida*) carried by the walnut twig beetle (WTB) (*Pityophthorus juglandis*) native to the southwestern United States. This disease complex causes only minor damage to western walnut species; however, eastern black walnut trees are more susceptible. Mortality is possible although timing is unclear.





*Small branch cankers caused by G. morbida, Whitney Cranshaw, Colorado State University*

### Description of work completed

Staff continued to conduct a monitoring program for WTB and the causal agent of TCD, *Geosmithia morbida*. Three new trap locations were added west of previously confirmed WTB infestations in the Franconia and Mount Vernon districts to track potential spread. Insect samples were collected from July through the end of October on 30 traps throughout the County (Figure 4). Insect samples were sorted in-house and sent to Virginia Tech's Insect ID Lab for confirmation.

### Results of monitoring

There were 199 positive WTB specimens confirmed in 2023. 186 of them were collected at a single trap site in Lorton. Five (5) other traps in the County each had a single confirmed WTB. TCD caused by *Geosmithia morbida* was not identified in the County.

## Emerald Ash Borer

### Background information

EAB (*Agrilus planipennis*) is an exotic beetle that has caused widespread mortality of native ash species since its discovery in the County in 2002. Since 2015, approximately 200 ash trees have been treated and monitored for EAB, with 186 trees currently included in the treatment program.

Since 2016, staff has conducted a release program for EAB parasitoid wasps: *Oobius agrili*, *Spathius agrili*, and *Tetrastichus planipennis*. Staff have released EAB parasitoid wasps on several County properties. The wasps were produced and supplied from the USDA APHIS Plant Protection and Quarantine (PPQ) EAB Parasitoid Rearing Facility in Brighton, Michigan.



*Adult EAB, Davis Cappaert, Michigan State University*

### Description of work completed

Staff completed evaluations of the 186 trees in the county-wide ash treatment program (Figure 6). Annual tree evaluations are used to prescribe future treatments as well as to assess the overall success of the treatment program for high-value ash trees on County owned properties. Fifteen (15) trees were treated by staff with emamectin benzoate injections as part of the treatment program (Figure 6). Staff continued to scout the County for surviving ash trees to add to the treatment program. Those numbers are dwindling. Very few of the trees found were good candidates for treatment. Staff agreed that a shift to scouting for surviving seed-producing ash trees would be beneficial, as those could be useful seed sources for propagating seedlings that may potentially be EAB-resistant.

Staff continued to monitor locations where EAB parasitoids were released within the last two (2) years using yellow-pan traps to determine if the parasitoids have become established. Four (4) yellow-pan-traps were set and monitored weekly at Burke Station Park from May through September (Figure 5).

The parasitoid release sites were assessed for possible long-term ash restoration efforts, including chemical treatment of any surviving ash trees, invasive plant management, and planting ash seedlings. The goals of the restoration project are to provide a food source for the parasitic wasps that were released, and to preserve ash trees in some forested areas of the County indefinitely. Three (3) sites have been identified as suitable for the ash restoration project. Staff maintained 108 seedlings that were planted at one of the sites in Flatlick Stream Valley Park two (2) years earlier.



*EAB Parasitoid Release Site*



*Staff checking yellow-pan-traps*

Staff continued to investigate new control methods for EAB, including the use of new biological controls. Staff continued to coordinate the remediation of damage caused by EAB, including the removal of dead ash trees from County property.



*Pesticide injection for treatment of EAB*

#### Results of monitoring/treatment

186 ash trees that were evaluated in the County-wide ash treatment remain in the program. Six (6) ash trees were added for a new total of 192 trees. Fifteen (15) trees were treated for EAB.

EAB parasitoids were not recovered from the yellow pan traps.

One new site was added to the long-term ash restoration project for a total of three (3) sites. They are located at Flatlick Stream Valley Park, Bren Mar Park, and Pimmit Run Stream Valley Park.

## Fall Cankerworm

### Background information

Fall cankerworm (FCW) (*Alsophila pometaria*) is a native insect whose larval stage feeds on the leaves of hardwood tree species throughout much of North America. FCW life stages are important food for native birds, however sometimes a local population of FCW can grow large enough to defoliate trees. It is therefore important to carefully monitor FCW populations in order to make good management decisions.



*Female Adult FCW, Matt Bertone*

### Description of work completed

Staff completed a FCW adult moth trapping survey in the Franconia, Mason, and Mount Vernon districts where outbreaks of FCW had occurred in the past. Staff set a total of 52 sticky-band traps in late November of 2022, and visited each weekly through the end of January of 2023 to count the number of male and female moths captured (Figure 8). The cumulative counts were used to track the current FCW population levels and predict the associated risk of defoliation by larvae that hatch the following spring.

Any FCW eggs found on or near the traps would be placed in special containers that allow parasitic predation while protecting them from larger predators. They would be left on site to develop naturally until March when they would be gathered and evaluated in the lab for parasitic predation and hatch rate.

Staff also conducted a FCW defoliation survey throughout the same districts the following spring. 107 trees were assessed for signs of feeding and defoliation (Figure 7).



*Caterpillar, photo by Joseph Berger, Bugwood.org*

## Results of monitoring/treatment

89 female moths were collected in the FCW adult moth survey during the 2022-2023 monitoring season. The counts did not exceed thresholds that would indicate a large larval hatch that could warrant treatment. In addition, no egg masses were found during the survey period.

107 different trees were evaluated for defoliation. None exceeded 30%, with the majority at the lower end of light range category. No significant defoliation was observed in spring 2023.

## Hemlock Woolly Adelgid

### Background information

HWA (*Adelges tsugae*) is an exotic, invasive insect that infests and often kills eastern hemlock (*Tsuga canadensis*) trees within four (4) to ten (10) years. The remaining natural stands of eastern hemlock within the County are few and isolated to several parks. Without protection the multiple benefits they provide to wildlife and their scenic beauty along our rivers will be lost and cannot be easily replaced.



*HWA hidden underneath their woolly ovisacs on a heavily infested twig*



*HWA adults crawling to the base of a hemlock needle to feed.*



*Staff conducting a bark spray treatment at Fountainhead Regional Park.*



*Staff beat-sheeting for predatory beetles at Scotts Run Nature Preserve.*

### Description of work completed

Staff investigated and implemented more efficient alternatives to trunk injection treatments. New application methods used in 2023 include bark sprays, soil drench, and soil injections. Bark sprays use a fast-acting insecticide containing dinotefuran that is best suited for heavy infestations that need immediate control. Soil drench and injections containing the insecticide imidacloprid take more time to be effective but provide five (5) to seven (7) years of protection. These methods can efficiently treat large numbers of hemlocks.

Staff continued to refine the hemlock inventory in Bull Run Marina, Fountainhead Regional Park, and Sandy Run Regional Park, all located along Bull Run/Occoquan River. Staff field-surveyed hundreds of acres of park property to find new areas to include in the hemlock inventory.

Staff collaborated with GIS Services to pilot a project that uses deep learning to identify evergreen trees from aerial photography. The results of the project have helped field staff identify possibly unmapped concentrations of hemlock trees and estimate relative abundance of hemlock trees for planning purposes.

Staff scouted and assessed hemlock stands for their eligibility to receive predatory beetles. Hemlock stands were assessed according to selection criteria set forth by Virginia Department of Forestry (VDOF) to identify hemlock stands with the best chance of establishing predatory beetles. Hemlock stands that meet the criteria could be selected for predatory beetle releases.

Staff evaluated hemlock tree health and the HWA infestation levels to gather information about the effectiveness of treatments. Methods used to collect field data were developed by the USDA Forest Service for accessing tree condition and estimating HWA infestation levels.

In a continued collaboration with VDOF, staff evaluated the initial effectiveness of the 2022 release of predatory beetles at Scotts Run. Sampling was conducted using the beat-sheet method in which beetles are knocked off branches onto a white sheet held beneath the branch, which helps determine establishment of the predatory beetle population. Once established, the beetles will reduce the stress on hemlocks by helping control the population of HWA adults.

Staff continue to research treatment methods and management strategies, as well as new methods for evaluating and measuring tree health and HWA infestation levels.

#### Results of monitoring/treatment

Staff treated a total of 926 hemlock trees (Figure 10). This is a significant increase over previous years as the staff's priority shifted to protecting as many hemlocks as possible and trying new methods of pesticide application. The use of bark spray and soil drench application methods were responsible for all treatments this year, which could be performed faster and required less specialized equipment. Staff also focused on treating in areas with the highest concentrations of hemlock trees.

Staff evaluated 15 hemlock trees. Evaluations were performed on a sample of previously treated hemlock trees. The evaluations show some level of protection on hemlock trees treated with imidacloprid, whereas hemlock trees that were treated with dinotefuran appear to have lost most of their protection. These data provide valuable information about the duration of pesticide protection and whether retreatment is necessary.

Staff inventoried approximately 42 acres of hemlock trees (Figure 9). Most of the inventoried areas were in Fountainhead Regional Park, which contains many hemlock trees. Staff have completed approximately 70% of their surveys for hemlock trees on park property.

Staff collected 6 predatory beetles from hemlock trees at Scotts Run Nature Preserve (Figure 11). The collection was made only 12 months after releasing 700 beetles at Scotts Run. This means that beetles have successfully completed an entire life cycle and is a promising sign that predatory beetles are on their way to establishing at Scotts Run.

Staff identified two potential HWA predator release sites at Fountainhead Regional Park. A preliminary review of the two sites showed that the hemlock trees were in fair to good health with accessible lower branches. Further evaluation and VDOF review are necessary to determine their eligibility for beetle releases.

## i-Tree Eco

### Background Information

In 2022, the County entered into a contract with Conservation Management Institute (CMI) to conduct a tree survey and incorporate the data into the i-Tree Eco™ model. The model estimates ecosystem services and characteristics of the urban forest. In 2017, staff conducted a countywide survey and incorporated the data collected into the [i-Tree Eco](#) model. The survey involved evaluating forest conditions in 204 randomly selected sites throughout the County (Figure 12).

### Description of work completed

CMI completed all tree surveys. In 2024, CMI will analyze the data collected and compare it to the 2017 results. Additionally, CMI will produce a report with an assessment of the potential resilience of the urban forests in the County and stand level carbon stocks. The report will also include suggested management actions, where appropriate, to increase stand level resilience and/or carbon stocks.

## Spongy Moth

### Background Information

The [spongy moth caterpillar](#) (SM) (*Lymantria dispar*), formerly called gypsy moth, is a leaf feeding insect of primarily hardwood trees. SM remain in very low population numbers in the County.



*Oak trees refoliating after a defoliation*



*SM caterpillars chewing oak leaves, Tim Tigner, Virginia Department of Forestry, Bugwood.org*

### Description of work completed

No measurable defoliation was observed by staff or reported to staff in the spring of 2023. Staff completed 151 egg mass surveys in SM preferred habitat across the County in the fall of 2023 (Figure 13).

### Results of monitoring/treatment

No control treatments were needed in 2023. No measurable defoliation was observed or reported. No egg masses were found in the County (Figure 13). Staff does not anticipate any defoliation in 2024.

## Spotted Lanternfly

### Background information

SLF (*Lycorma delicatula*) is an insect native to Asia which was first found in 2018 in Frederick County, Virginia, and has since spread throughout Virginia. Staff has monitored this insect and inventoried tree



of heaven (TOH) in high-risk introduction areas since 2019, first finding SLF in the County in 2022. Due to the large nuisance caused by this pest, VDACS, in cooperation with USDA-APHIS, employ control measures in areas with known infestations. UFMD anticipates most residents in the County will be impacted to some degree as SLF continues to spread.



*SLF nymph photo credit Eric Day, Virginia Tech Insect ID Lab, Virginia Tech Department of Entomology*



*SLF adult and nymph photo credit Stephen Ausmus USDA*



*SLF egg mass*

## Description of work completed

Surveys for all life stages in all areas of the County were conducted using various methods. A total of 111 circle traps (without lure or pesticide strips) were deployed across the County July through October. Visual surveys in prime locations were conducted by staff. Outreach to encourage residents to report SLF sightings to staff were employed. Concentrated “blitz” efforts were undertaken. During the blitzes, colleagues from external agencies participated with staff in one day efforts to search as much of the County as possible.

Staff continue to implement the [management plan](#) completed in 2022, on County properties. Mechanical removal of SLF life stages using backpack vacuums was tested. Staff continued to monitor the latest scientific research for SLF to determine the best possible management strategies for managing infestations on County properties and to provide information to enable citizen self-help efforts.

The inventory of TOH that was begun in 2020 was used to find locations suitable for TOH removal on County owned properties. Approximately 10% of sites inventoried were found to contain TOH, and TOH removals to reduce the prevalence of SLF’s preferred host across the County were begun (Figure 16). Treatments with horticultural oils or herbicides containing triclopyr or glyphosate to remove ideal SLF habitat from County properties, may be used.

## Results of monitoring/treatment

61 traps were found to be positive, with a total of 1,289 adults trapped in 2023 (Figure 14). These results indicate significant population growth and spread of SLF across the County. UFMD anticipates this to continue for the next several years.

Mechanical removal of SLF life stages using backpack vacuums proved successful and will continue to be used in 2024.

SLF egg masses were found at five (5) sites during the blitz event in January. These were destroyed where they could be reached.

Postcard mailings and other outreach efforts resulted in 92 reports of sightings by County residents (Figure 15). 76 of these reports were confirmed to be positive via pictures or on-site visits. Treatment of TOH found on County properties resumed in 2023, but the arrival of SLF, staff shortage, and communication delays hindered the ability of staff to treat as much TOH as had been anticipated. Pilot treatment efforts on seventeen (17) sites have been completed since the start of this project. Nine (9) new sites, approximately 8.7 acres, were treated in 2023, and eight (8) other sites are being monitored for resprouting and potential retreatment (Figure 18). All treatments and retreatments were accomplished by a contractor. Staff conducted quality control checks on all treated sites.

## Outreach

### Background Information

Staff administered and participated in outreach and education efforts to foster an appreciation for trees and the benefits of the urban forest and to inspire others to protect, plant, and manage greenspace resources. Targeted audiences for education and training include Fairfax County Public Schools (FCPS), County staff, community scientists, homeowner’s associations, and natural resource professionals.

## Description of work completed

Most of the Forest Pest messaging to the public was delivered through virtual platforms (social media posts, NewsWire, internal blog posts, webinars, and website updates). Additionally, staff presented in the classroom, partnering with organizations like FCPS, [Nature Forward](#), and Northern Virginia Community College. Staff participated in the Flood Risk Engagement and Culmore Environmental Program Planning Groups. Staff leveraged the partnership with FCPA Public Information Office to submit social media posts to expand reach to over 35,000 followers.

Staff continued to implement an outreach program explaining the impacts and threats of the various pests listed in this report to help inform the general public, landowners and decision makers.

Fairfax County Urban Forest Management Division: ReportSLF@fairfaxcounty.gov (703) 324-5304, TTY 711

**Wanted: Spotted Lanternfly**

**About the insect:**

- ◊ Invasive insect from East Asia
- ◊ Excellent hitch-hiker & jumper
- ◊ Feeds on grapes, stone fruit trees and 70 other plant species
- ◊ Favorite host is Tree-of-heaven

**Where to look:**

- ◊ Tree bark
- ◊ Landscaping stone
- ◊ Rusty metal surfaces
- ◊ Outdoor vehicles
- ◊ Pallets

**How to help:**

- ◊ Educate yourself and friends
- ◊ Inspect your outdoor work area
- ◊ Take pictures or capture any you find
- ◊ Please report to: [iNaturalist](#)

**Eggs**      **Nymphs**      **Adults**

Eggs		Nymphs			Adult							
Nov	Dec	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov

## SLF Informational Postcard



Staff at Bluebell at the Riverbend park talking to event participants.



UFMD Staff at Burke Lake Park pointing out BLD to Architect of the Capital staff.

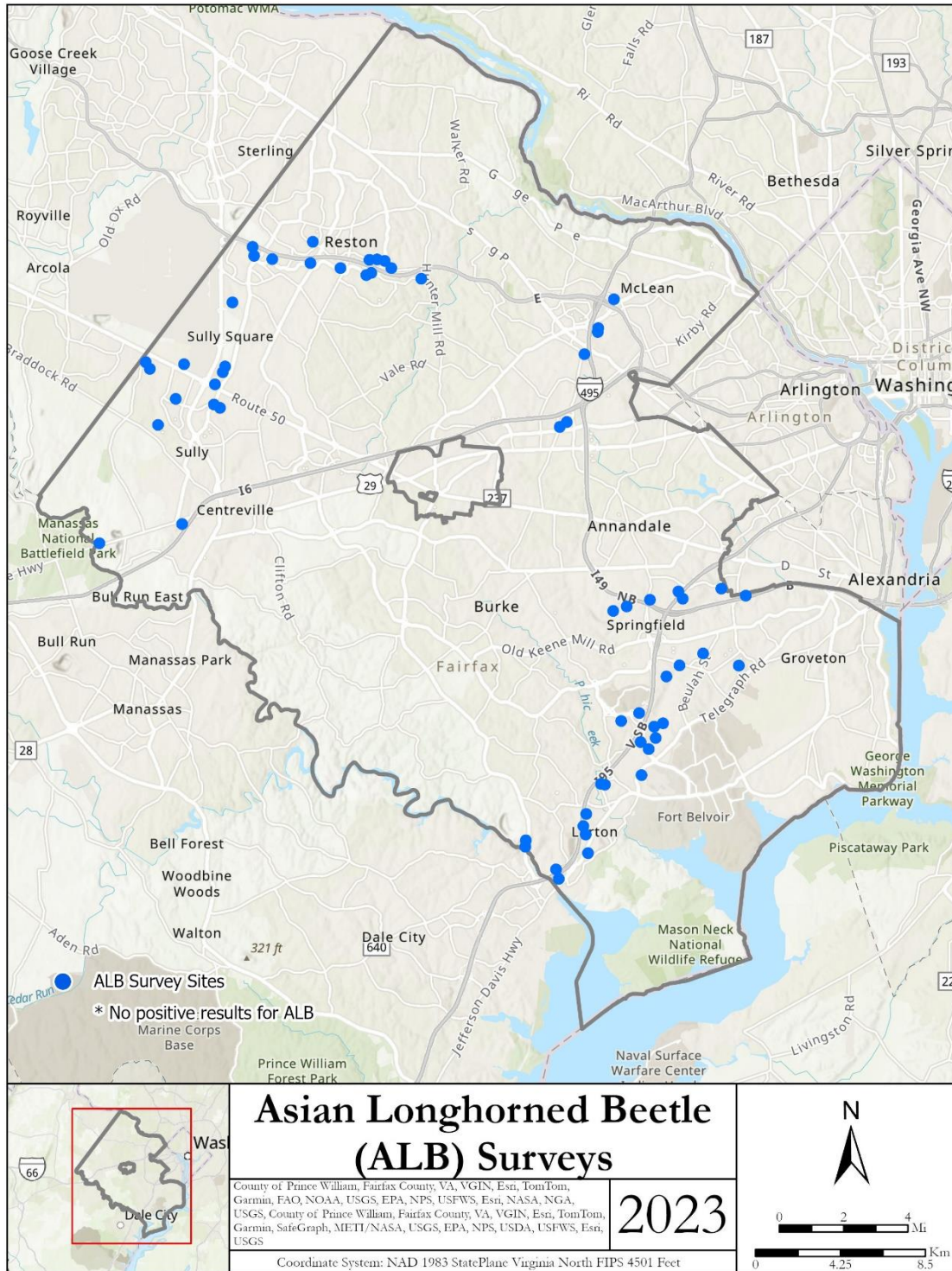
Table 1 - Outreach efforts and outcomes

Outreach Effort	Outcome
Media Posts	Staff created 30 posts for the Department of Public Works and Environmental Services (DPWES) social media accounts (Facebook and X -formerly Twitter).
Press Interviews or Events	Staff spoke with several news stations about the removal of TOH at Blake Lane Park as a strategy for managing SLF populations. Staff were interviewed by the press, including the Washington Post about SLF. Staff participated in a radio interview and provided information for a published news article with WAMU about the spread of BLD.
County Podcasts and Videos	None completed this year.
School Programs	Staff participated in five (5) <a href="#">school programs</a> , including Trees Please at Stratford Landing and a full day at Ft. Belvoir Elementary School. Staff conducted a science camp career day at Braddock Secondary School. Staff presented to 9 <sup>th</sup> grade students at Robinson Secondary School.
Internal County Blog Posts	24 blog posts were created providing information on pests of concern such as SLF, public events that staff participated in such as Arbor Day and highlighting innovative UFMD projects like managing SLF and monitoring of the parasitic release for HWA.
Webinars and Cross Trainings	Staff provided seven (7) cross trainings for County and non-County agencies on various forest pest issues. Internally, staff spoke with the Health Department, DPWES, and FCPA. Staff provided in-person training in partnership with Nat-Cap PRISM. Staff provided an in-person training in Spanish in partnership with Nature Forward and Northern Virginia Soil and Water Conservation District (NVSWCD). Staff conducted field events with District Department of Transportation Urban Forestry staff, D.C. Architect of the Capital and Botanic Garden staff to inform them about symptom identification and latest information on BLD. Staff participated in the <a href="#">Employing Youth through Employment Program</a> and provided job training to a young adult for two weeks.

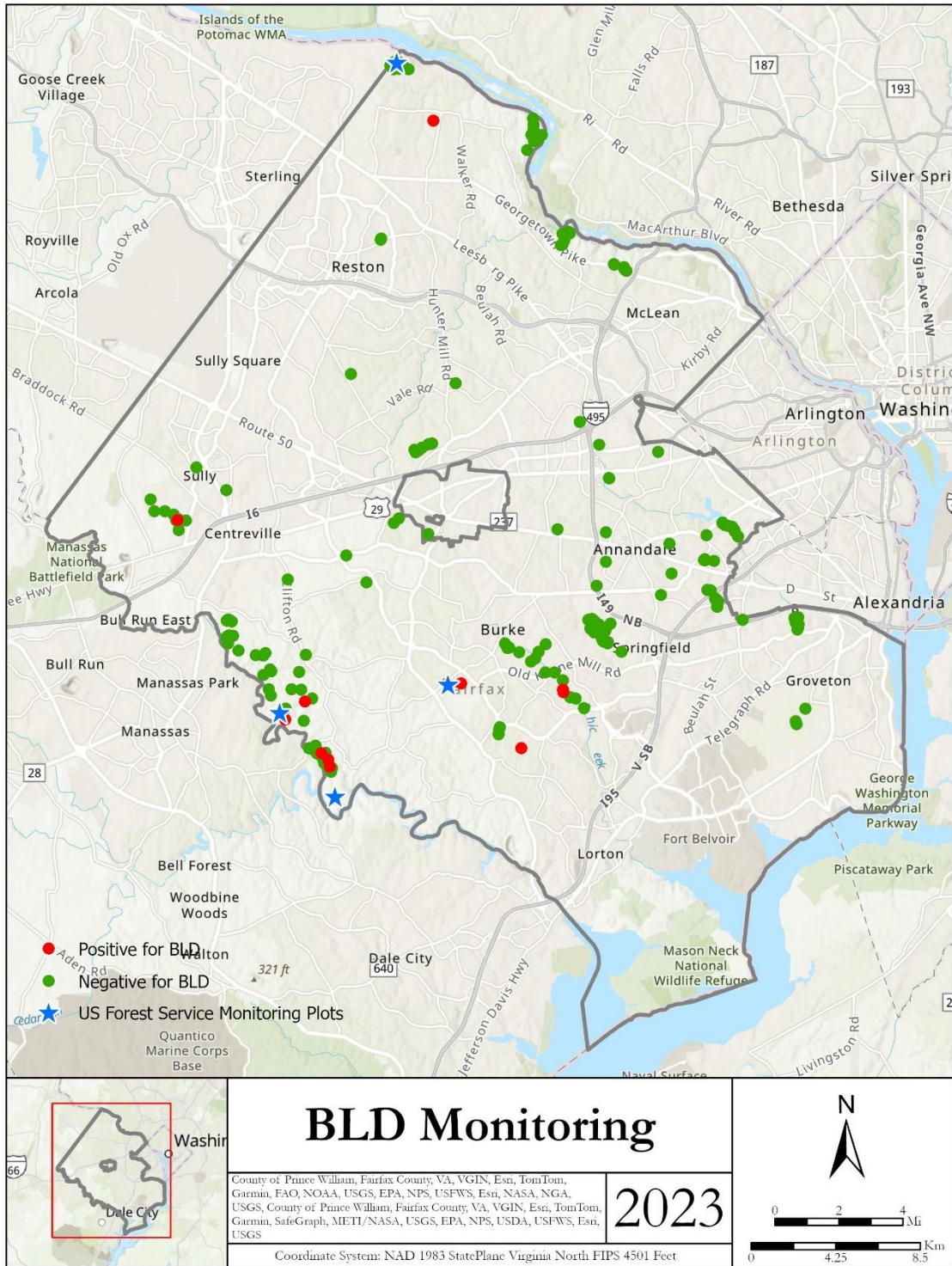
Outreach Effort	Outcome
NewsWire/Press Releases	<p>Staff worked with DPWES Communication and Media Group to compile and post four (4) news press releases:</p> <ul style="list-style-type: none"> <li>-County Watching and Monitoring for Spotted Lanternfly</li> <li>-Spotted Lanternfly Seen in More areas of Fairfax County</li> <li>-Beech Leaf Disease Spreads in Fairfax County</li> <li>-County Warning Residents about a New Vegetation Disease Called Vascular Streak Dieback</li> </ul>
In-Person Community Events	<p>Staff participated in five (5) community events: Bluebell Festival at Riverbend Park, the Mount Vernon Environmental Expo, Arts in the Park at Mason District Park, and Earth Day at Sully Historic Site. Staff partnered with NVSWCD tree seedling distribution. Staff supported the Arbor Day celebration at Mantua Elementary School.</p>
Print Media	<p>Almost 21,000 SLF postcards were mailed to residents and businesses. Almost 21,000 informational SLF postcards were mailed to residents and businesses within a half a mile of sites where staff located positive SLF traps (Figure 17). The postcard included information on SLF identification and how to report it. By request, 3,350 of Tree Basics booklets were printed in English, Arabic, Mandarin, Vietnamese, and Korean for the Fairfax County Library system.</p>
Website	<p>Staff updated <a href="#">Forest Pest webpages</a> with new information about SLF and BLD, updated resources links and how to report information for pest issues.</p>

# Maps

Figure 1- ALB Survey Locations



**Figure 2- BLD Surveys and Positive Sites**



**Figure 3- SOD Testing Locations, OAB and RAB Trap locations**

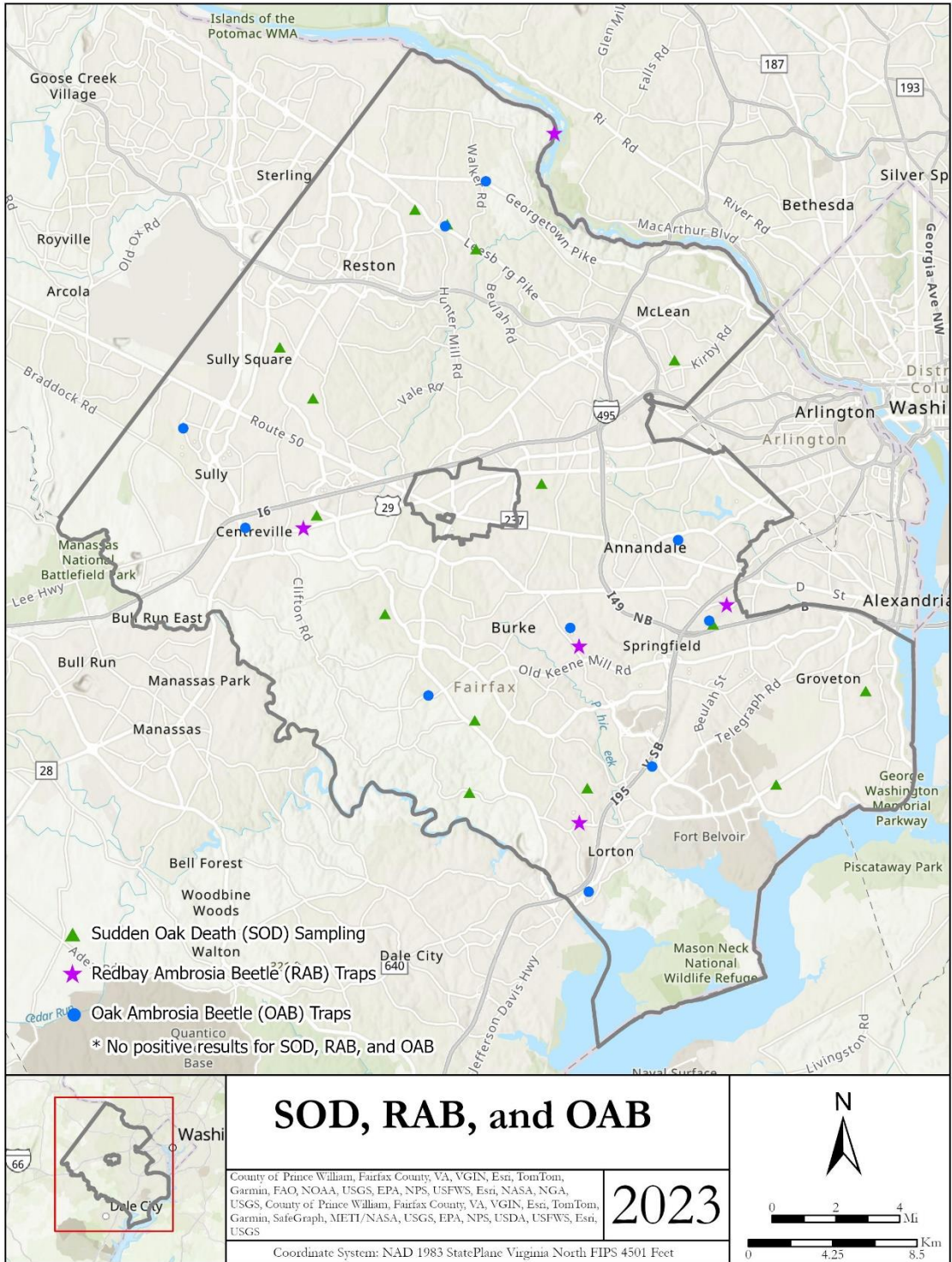




Figure 4- TCD Trap Locations and Positive Sites

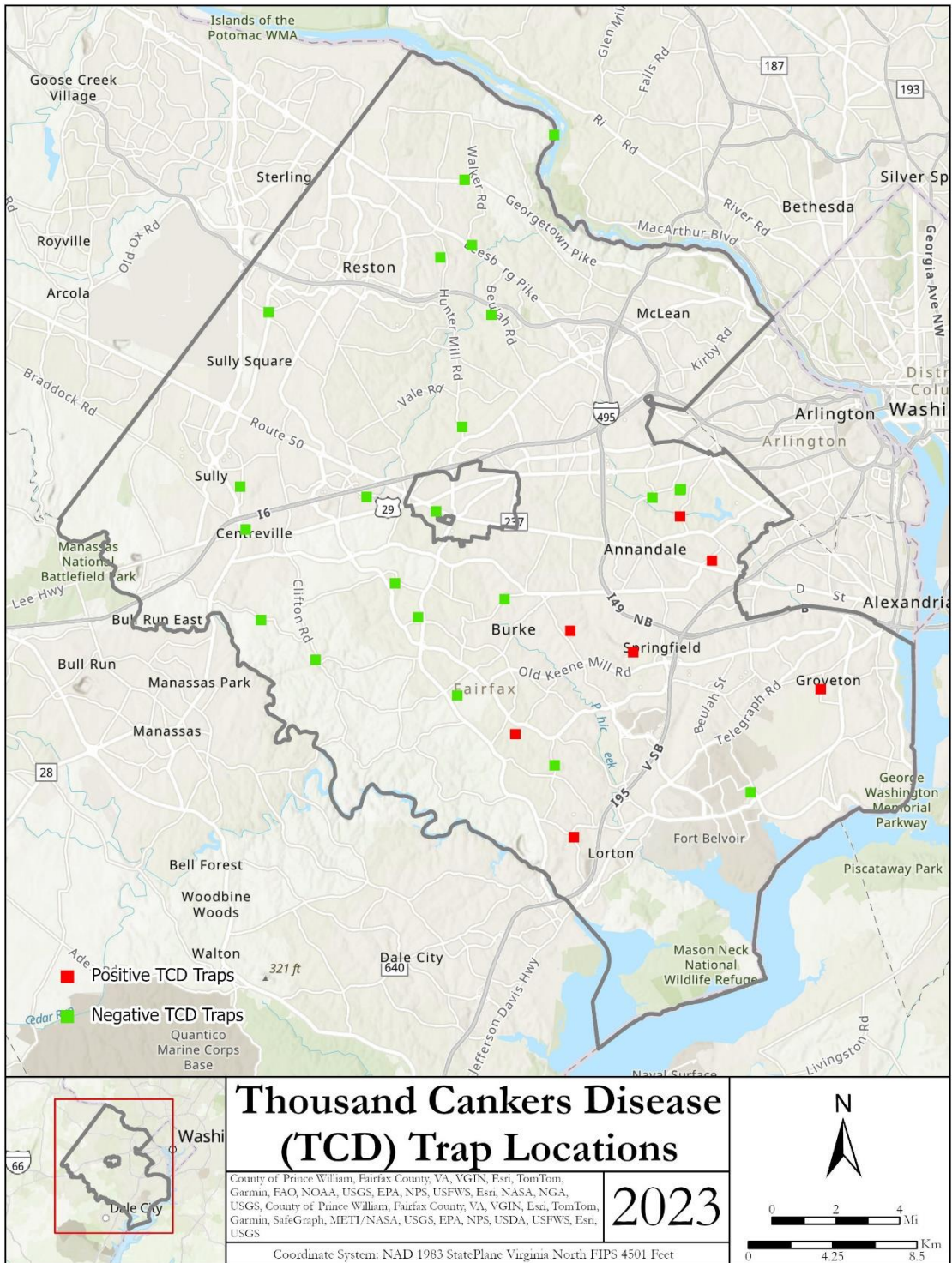




Figure 6- Ash Tree Evaluations and EAB Treatments

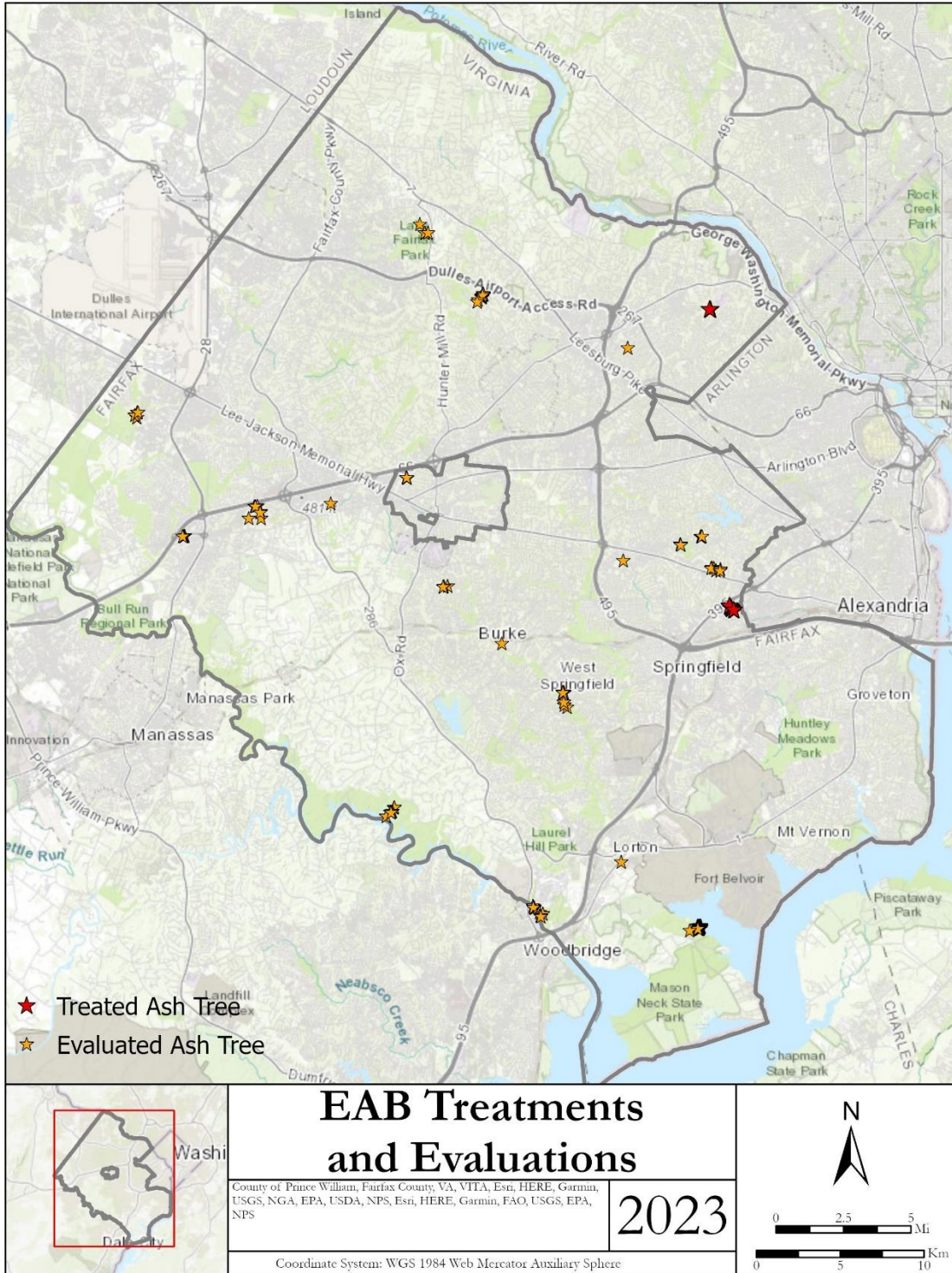


Figure 7- FCW Defoliation Survey

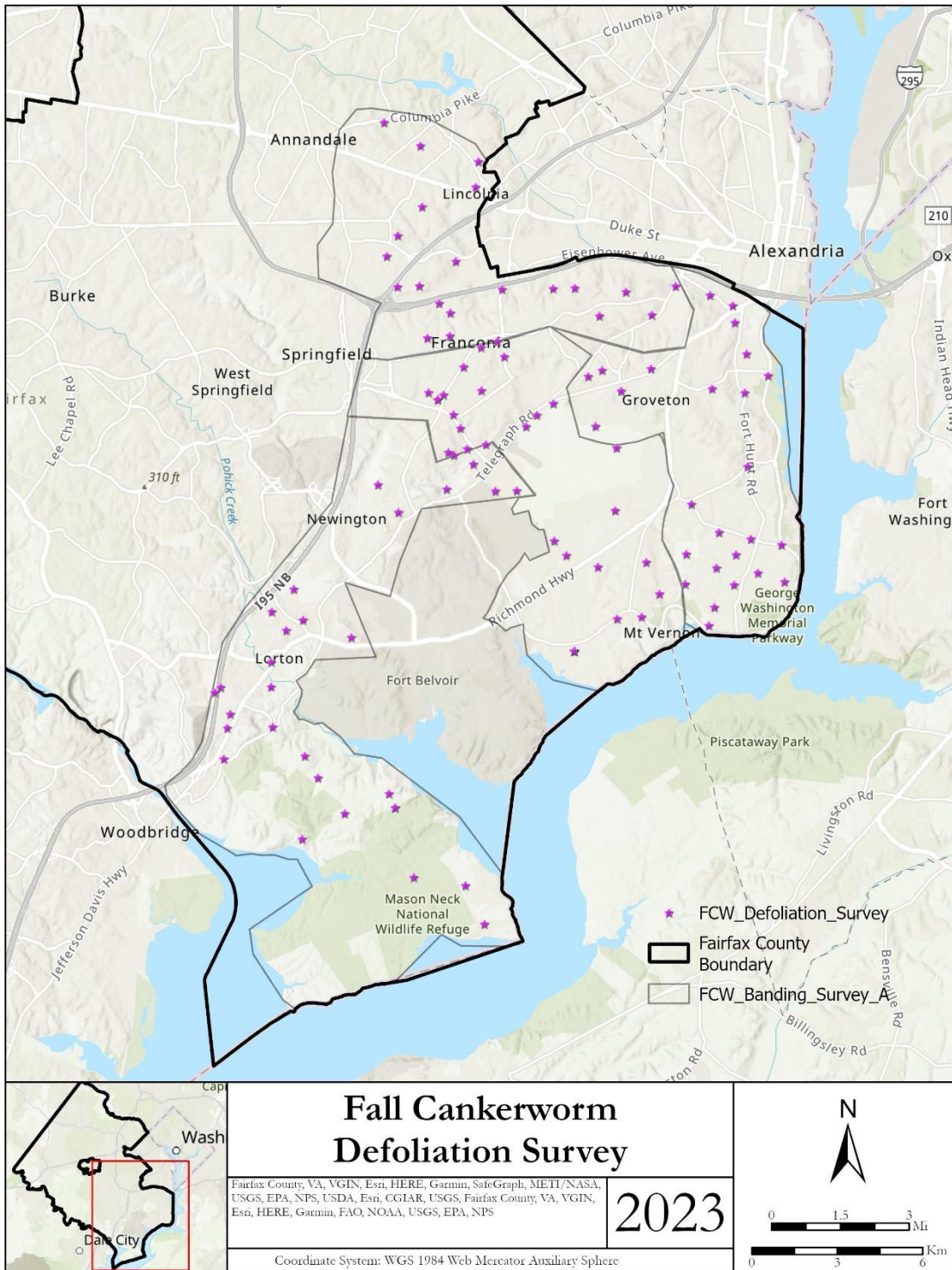
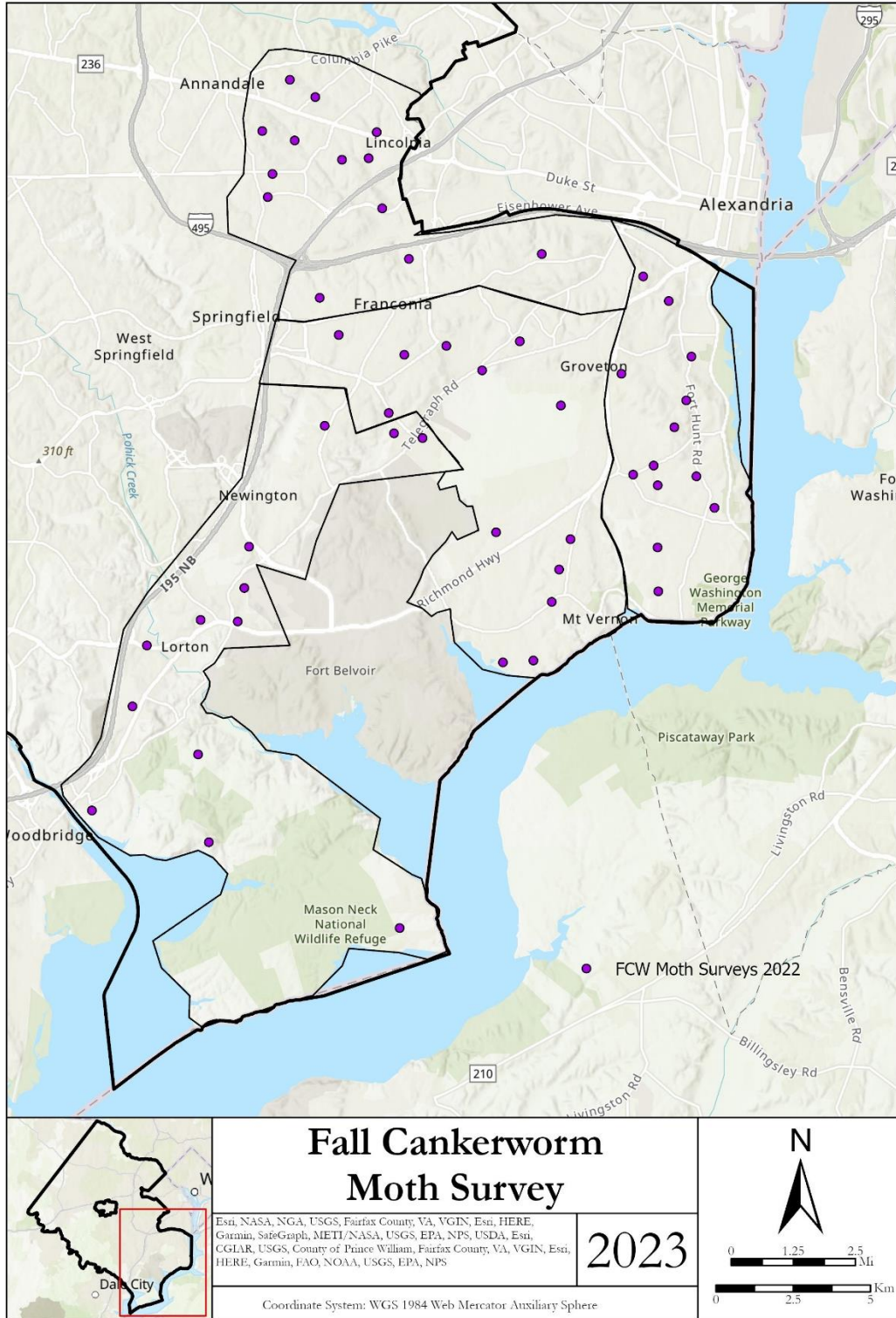


Figure 8- FCW Adult Moth Survey



**Figure 9- Hemlock Forest Inventory Area**

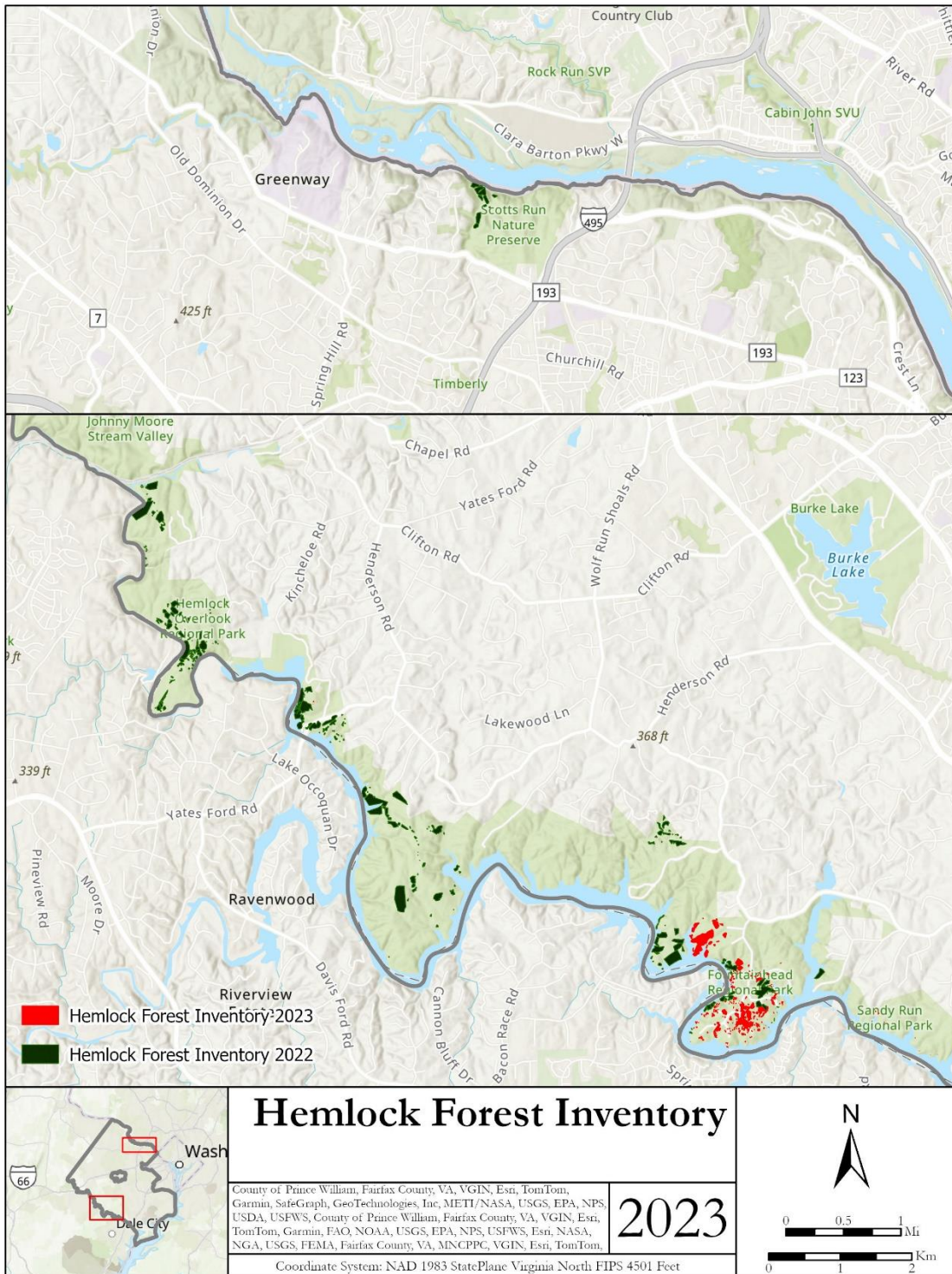


Figure 10- HWA Chemical Treatments

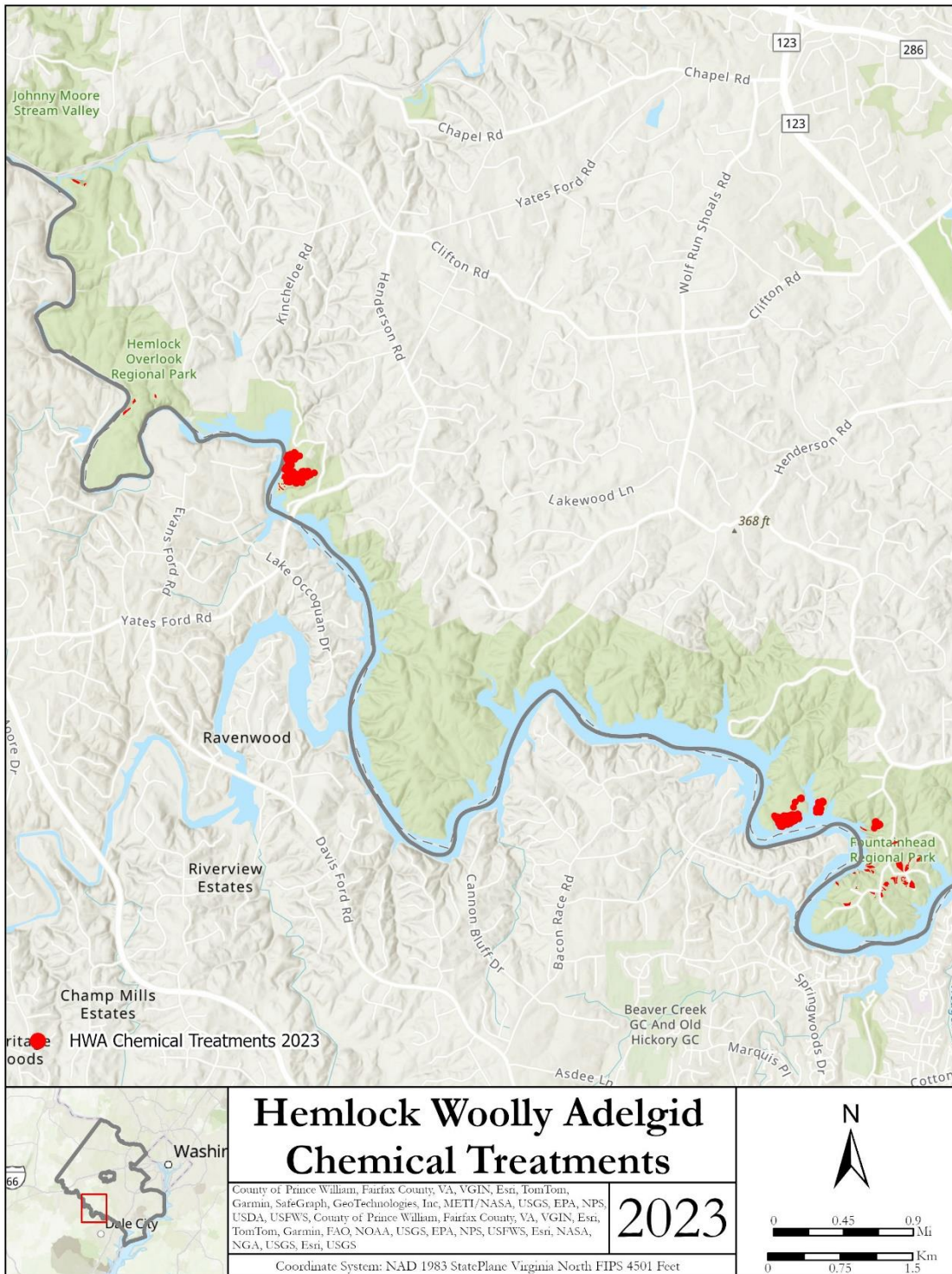


Figure 11- HWA Predator Recovery Location

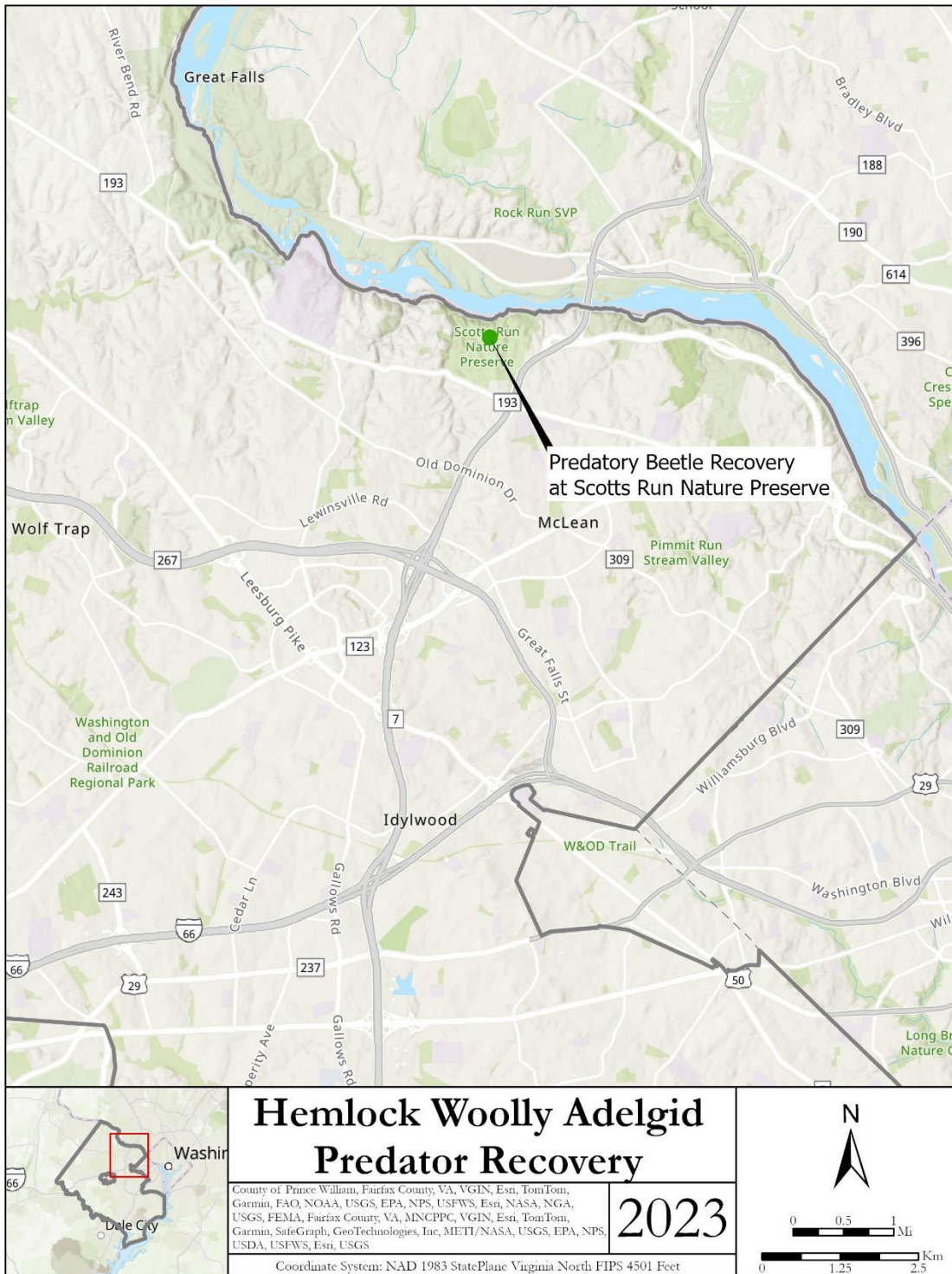




Figure 12- 2017 iTree Eco Survey Pilot Locations

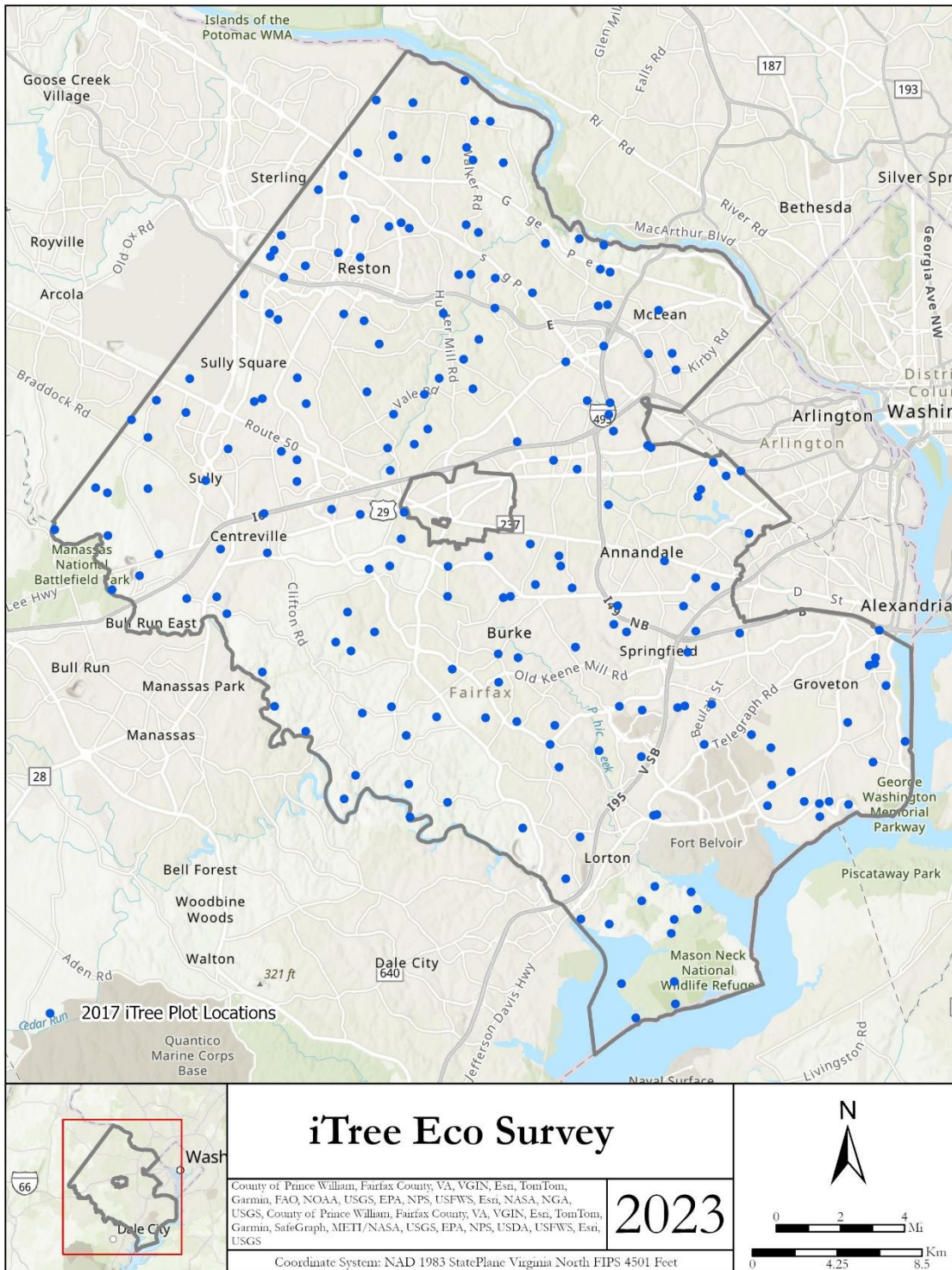


Figure 13- SM Egg Mass Surveys

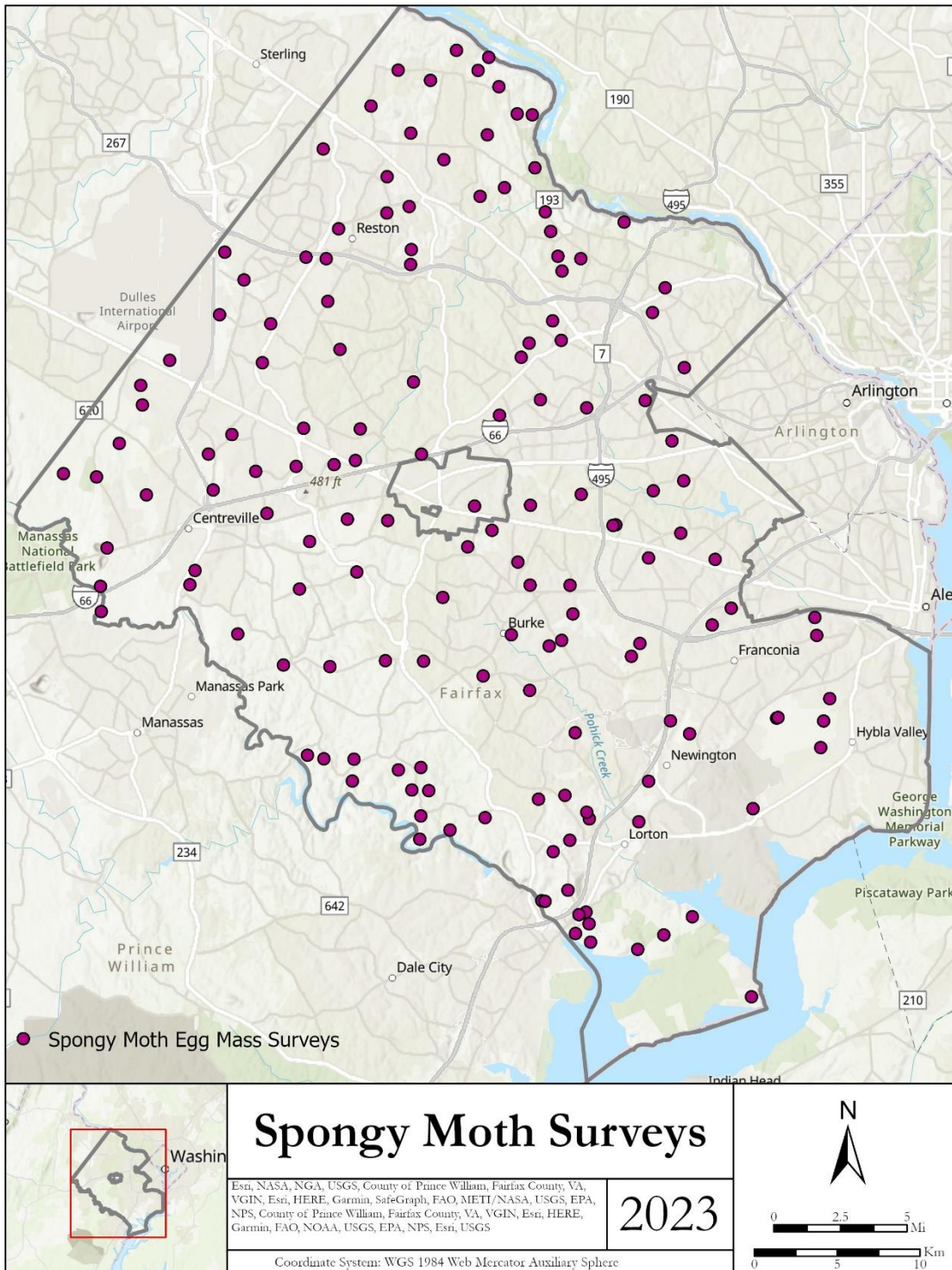




Figure 15- SLF Postcard Mailer Outreach Areas

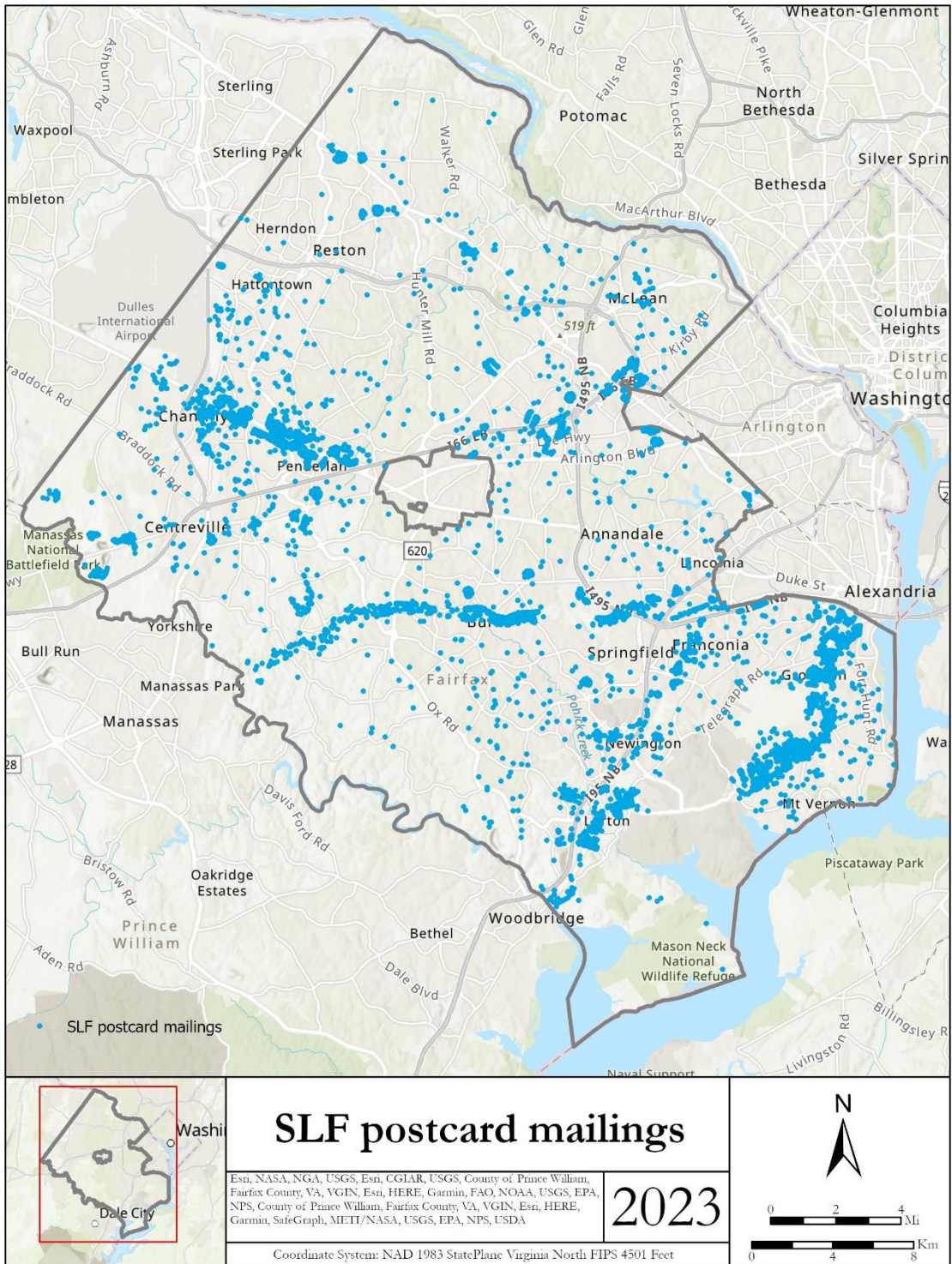


Figure 16- TOH Removal Locations

