

Summary Report for NJ Rapid Ash Survey Grant

The funding provided by NJ State Forestry Services was for a rapid response to emerald ash borer (EAB), an invasive insect which has been confirmed in 14 municipalities across 6 counties in NJ to date. This is part of the statewide agency cooperative (NJ EAB Taskforce) effort to prepare and best respond to this insect, which has killed hundreds of millions of ash trees across the United States since 2002.

Undergraduate students at Rutgers University were hired in April/May and trained to both identify ash trees (*Fraxinus* spp.) and measure trunk diameters using Biltmore sticks. These students developed a digital interactive map of ash tree locations using the GPS capabilities on their smartphones and an application called "Collector for ArcGIS" to provide the location of all identified ash trees to each municipality. This innovation expanded on the original plan to develop and provide a report of findings to participating municipalities, resulting in a more meaningful and useful product than originally anticipated.

The students, coordinated through Pam Zipse (Outreach Coordinator for the Rutgers Urban Forestry Program), completed rapid counts and measurements of municipally owned and controlled ash trees in 43 municipalities (or developed zones within some of the geographically larger townships). The original project targeted 20 municipalities, so we exceeded funding expectations for outputs by over 100%. The municipalities surveyed through this project were selected to fill data gaps in key locations throughout the state, and each was contacted prior to the students' arrival to minimize confusion and public concern. The municipalities surveyed through this program, along with ash counts and projected costs, are listed in Table 1.

The student teams worked in pairs for the vast majority of the data collection. The students counted any ash tree within 10 feet of a road or sidewalk, as well as trees in parks and parking lots which were clearly labeled as municipal. They *did not* work through gated housing communities, or in some zones where walking the roadside was deemed dangerous. After the 43 communities were completed, the team revisited 4 municipalities from the first weeks of the project to repeat the same count through more experienced eyes. These repeat counts were used to verify accuracy, and a pair of site visits was conducted by the Rutgers Urban Forestry Program to serve as quality control for the data reported. Data collected through the survey effort was imported into the Purdue Emerald Ash Borer Cost Calculator to provide municipalities with an idea of the level of financial exposure caused by this invasive insect. Input values for tree removal costs were developed from a survey of tree care professionals around the state as organized by the NJ Arborists-International Society of Arboriculture and the NJ Society of Certified Tree Experts. Costs for treatment were developed from recommendations from Ohio and Purdue Researchers and industry representatives for the marketed products available for use in NJ. Default values in the Cost Calculator were replaced by these local values to more accurately reflect the financial impact EAB is likely to have on NJ municipalities.

Reports including resource information for management planning, the actual ash tree count data, access to and interpretation of the digital map files, and projected cost scenarios were provided to participating municipalities. These reports averaged 40 pages each, and included links to a web address to download and access tree count maps specific to each municipality, as well as a report from the Purdue EAB Cost Calculator modeling three management scenarios. Each participating municipality has received a digital copy of their report in pdf file format. We will be happy to provide these reports to the State Forester upon request. In addition to preparing these reports, three of the students hosted an information table

at the NJ Shade Tree Federation annual conference. This provided the opportunity to share the findings beyond the surveyed municipalities, and the students discussed the project with many representatives of neighboring municipalities who will also benefit from the information collected and the projected cost estimates in developing EAB management plans for their communities.

Management scenarios provided to the participating municipalities modeled through the Purdue EAB Cost Calculator represented a comparison of three general options: Removal of ash trees as they become unsafe, preemptive removal and replacement of all ash trees, and a combination of chemical treatments and removal/replacement based on tree diameter. These scenarios provide valuable information in terms of anticipated costs associated with each response option. They **do not** directly communicate the environmental consequences of any given management intervention. The reports provided to the municipalities stressed the need to develop a plan, and encouraged municipal authorities to consult with a professional forester or certified tree expert to assist with decision making and prioritization.

Our recommendations for next steps include a desire to utilize the data collected to model the ecosystem services provided by the municipal ash resource in each municipality using i-Tree Streets, thus enabling municipalities to compare costs of removal and replanting vs. chemical treatment of their ash trees in light of the value of the ecosystem services those trees are currently providing. In order to further facilitate planning on the municipal level, we would like to design and host a workshop for representatives of the participating municipalities to discuss the reports and how to utilize the findings to make sound management decisions. Finally, we would like to merge the data collected through this survey effort with existing ash tree inventories extracted from historical municipal street tree inventory data to begin to develop a statewide inventory of municipal ash trees that can be used to more accurately model big picture management costs and resource implications statewide.

The following pages contain a summary table of the information collected and costs projected for each surveyed municipality, a chart showing the size (age) distribution of all ash trees surveyed, and a link to the interactive map containing the location and diameter class of ash trees surveyed for each municipality. If you have any questions or require any additional information please do not hesitate to contact us.

Respectfully submitted,



Jason Grabosky; Professor
John and Eleanor Kuser Faculty Scholar in Urban and Community Forestry
Director: S.E.B.S. General Honors Program
Department of Ecology, Evolution and Natural Resources
Rutgers University
New Brunswick, NJ 08901
Phone: 848-932-0050