

Priority Planning for Ash Trees Impacted by the Emerald Ash Borer

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Cayuga County is one of 18 counties in New York State that is a carrier of the invasive species, the emerald ash borer. The emerald ash borer is a green beetle native to Asia that is highly destructive to ash trees in its introduced range. In its larval stage, the emerald ash borer feed on the conductive tissue of the tree, disturbing the transfer of water and nutrients from the roots to the leaves. Once a tree has been infested, it has a remaining lifespan of 3-4 years. As the emerald ash borer continues to spread in many states across the US, the need for an organized large-scale response has become essential.

The purpose of my collaboration with the City of Auburn Public Works Department was to create a planning solution for the management of ash trees threatened by the emerald ash borer. I conducted my fieldwork by taking a complete inventory of all ash trees on city property using an infield geospatial software and GeoTIFF imagery. The survey included collecting attribute data for tree diameter, condition of health, surrounding utilities that could be damaged by falling limbs, as well as spatial location. After taking a complete inventory of all ash trees on city property, I imported my data into a geodatabase using ESRI geospatial software.

After collaborating with professionals from Public Works and County Planning, a criteria was determined for trees in the most immediate need of treatment or eradication. Based on these criteria, I assigned numerical scores to the ash trees based on their respective attribute information. This gave a scale of trees requiring highest to lowest priority treatment. To make the process more efficient for the Public Works Department, I joined the numerical score to a street segment layer to give a priority scale of which streets should be addressed first for effective hazard risk mitigation.

As a result, the analysis provided a powerful tool for executing work with maximum spatial efficiency. Raw data on the number and size of ash trees was a useful tool for budget and resource forecasting. Although I applied this method to the emerald ash borer, this planning approach can be applied to a variety of urban tree crisis including invasive species, disease, and fungal infections.