



OPEN SPACE CONSERVANCY TRUST STAFF REPORT

Item 05
April 29, 2025
Special Business

AGENDA ITEM INFORMATION

TITLE:	2024 Forest Health Assessment Overview	<input checked="" type="checkbox"/> Discussion Only <input type="checkbox"/> Action Needed: <input type="checkbox"/> Motion <input type="checkbox"/> Ordinance <input type="checkbox"/> Resolution
RECOMMENDED ACTION:	Discussion only	

STAFF:	Lizzy Stone
COUNCIL LIAISON:	n/a
EXHIBITS:	1. Ex1 2024 Forest Health Assessment Report

SUMMARY

The Natural Resources team conducted an assessment of forest health across the City's forested parks and open spaces. The survey consisted of 446 small-sized understory plots and 146 large-sized overstory plots across Mercer Island. Pioneer Park and Engstrom Open Space contained 196 understory plots and 61 overstory plots in this study. Forest structure, tree regeneration, and understory composition data from this assessment show a great deal of variability across Trust properties. Initial review and analysis of the data suggests that the assessment will be helpful in guiding future planting, tree thinning, and weed removal efforts throughout the parks.

BACKGROUND

In 2024, the Natural Resources team engaged Haven Ecology and Research LLC to conduct a forest health assessment across the City's open spaces. This Forest Health Assessment (FHA) was conducted to 1) establish a new baseline for evaluating the management needs of the open spaces, 2) determine how biodiversity and structure have changed over time, and 3) measure progress towards the habitat restoration targets outlined in the [Climate Action Plan \(CAP\)](#).

The approach used for the 2024 FHA is closely aligned with the previous assessment conducted in 2014 for an update to the city's [Open Space Vegetation Management Plan](#). Two complementary surveys were done in parallel, one using 446 small-sized plots (25 m²) for surveying the understory plant community, and one using 146 large-sized plots (400 m²) for inventorying the overstory trees. Most of the data collected in 2014 can be compared to data collected in 2024. Additional data was collected during the 2024 assessment to establish baseline conditions for other ecosystem attributes and processes, such as the abundance of snags, downed wood, or changes in tree species composition over time.

Data collected for this survey will help to inform future management decisions in the City's parks and open spaces in order to achieve the targets set out in the CAP and move the City's forests toward a healthier and more stable state.

The FHA report is not intended as a City publication, but rather a consultant's report which will be used to inform future management planning. The Management Recommendations included in the document are from the consultant's perspective, which may not always align with the City's goals and practices.

DISCUSSION

Analysis of the Forest Health Assessment data showed that Pioneer Park and Engstrom Open Space's overstory metrics, tree regeneration rates, and understory plant communities varied greatly throughout the properties, but overall displayed similar trends to those seen across the rest of the island's open spaces.

Pioneer Park's overstory was composed almost entirely of native tree species, with more than half being native conifers. Engstrom's canopy is also primarily native trees, though the vast majority are deciduous trees such as the bigleaf maple. Curtis relative density of trees varied widely across Trust properties, with values ranging from 14 – 90 (average = 46). Of the sixty-one tree plots located on Trust properties, nineteen plots (31%) were found to be "moderately overstocked" and two plots (3%) were found to be "extremely overstocked". These data are being investigated further by Natural Resources team staff to determine if thinning interventions should be recommended or if natural tree mortality is likely to address the issue with time.

Coarse woody debris and snag densities also showed a great deal of variation throughout Trust properties. The average coarse woody debris and snag densities were 1,911 ft³ per acre and 17 stems per acre, respectively, which are close to the report's recommended targets of 2,000 ft³ per acre for coarse woody debris and 20 stems per acre for snags. Staff are exploring options for increasing both coarse woody debris volume and snag density in areas that are deficient.

Native tree regeneration, represented by the density of tree seedlings and saplings in the plots, varied greatly across plots with a maximum of 667 stems per acre and a minimum of 0 stems per acre (average = 141) on Trust properties. These data can help to guide targeted planting efforts in areas with low regeneration rates in the future. Non-native tree regeneration was dominated by English holly (*Ilex aquifolium*) in the "seedling" size class (< 1 inch diameter). This trend suggests that there is still a high level of holly propagule pressure in Pioneer Park, but efforts to treat and remove invasive trees throughout the parks have had an impact on the density of larger trees (sapling size class and above).

In the understory of Trust properties, the average cover abundance was 85% for native plants and 32% for non-native plants. The data showed greater diversity and richness of native species than non-native species throughout Trust property, though species diversity and richness varied widely across Pioneer Park, as shown in the maps on pages 77, 78, 79, 87, 88, and 89 of the report. Across the island, native species richness was negatively correlated with non-native plant cover, likely because native species were outcompeted by the non-native species. In contrast, native species richness was positively correlated with native plant cover.

The data summarized in this report will be used to establish the 2024 baseline of forest health for the island's open spaces, so that the City can measure progress towards the forest health targets established in the CAP. After some additional analysis and exploration of the data, staff will use survey results to guide future restoration efforts, including but not limited to planting, tree thinning, and weed removal efforts.

RECOMMENDED ACTION

Discussion only