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FORT&RRA formerly known as Cascade Land Conservancy

A Science Program for Urban Natural Resource Planning and Management

Extended Abstract - 2012 ISA Annual Conference and Trade Show

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1: Forterra: www.forterra.org

2: Green Cities Research Alliance: www.fs.fed.us/pnw/research/gcra/

Green cities are more livable cities, and yet urban natural resources are diminishing. To address this, cities need to plant trees, protect parks and green spaces, and restore watersheds. Large-scale, long-term research will help us learn how natural resource planning, restoration, and stewardship can improve urban ecosystems. The U.S. Forest Service's Pacific Northwest (PNW) Research Station is implementing the Green Cities Research Alliance (GCRA) in the Puget Sound region to tackle these research questions and work with land managers for improved practices. Scientists are working with agencies, non-profit organizations, and universities to assess forest conditions, prioritize forest management programs, and better understand ecological stewardship activity. A set of Integrated Urban Forest Assessments are taking place as leading projects in this research, together raising the state of knowledge and focus on the regions urban forests.

The Forest Landscape Assessment Project includes the development and implementation of a rapid assessment tool that allows field staff to quickly gather descriptive data about forest conditions. King County Parks is collaborating with Forterra and a consultant, International Forestry (INFO), to implement the tool for 23,000 acres of public open space lands distributed across 150 park sites in the greater Seattle metropolitan area. The process includes the delineation of habitat management units (HMU) in ArcGIS based on forest type and other site characteristics and uses. In the field each HMU is characterized by over story and under story species composition, including invasive plants, tree age and size, and other forest health indicators. For much of the King County Park system, this is the first time the forest composition and quality has been categorically identified.

This effort will produce the following outcomes: establish baseline forest data that identifies conditions that may need corrective and restorative actions; develop long term forest stewardship recommendations for King County managers; identify opportunities to collaborate with public and private agencies on forest stewardship; and develop rapid forest assessment protocols for use by other land managers.

The Forest Ecosystem Values Project has collected data on trees and understory plants across land uses in the city of Seattle, King County Parks, and throughout the Green-Duwamish Watershed. This data was collected using the i-Tree Eco tool (formerly the Urban Forest Effects Model), which provides field protocols and analysis capabilities to determine the current extent and condition of urban forests, as well as the associated ecosystem services. Research in Seattle estimates the city's urban forest – spanning private and public lands – to be valued at $4.99 billion dollars. The urban forest provides 725 metric tons of pollution removal annually, as well as 9,853 kilograms of carbon storage and 696 kilograms of annual carbon sequestration. With an understanding of the structure of the forest, this research also provides important information on potential threats to the long term health of forest, including pest outbreaks, invasive species impacts, and trends in planting and canopy coverage. These results, provided by land use type, will improve land management and publicize the importance of our urban forests.

Additionally, the Forest Ecosystem Values Project was implemented to consider the application and effectiveness of i-Tree Eco tool itself. Information on the implementation of the tool to fully forested landscapes, cost considerations for private property outreach, and Pacific Northwest calibration of the tool were all explored as part of this effort. This work will provide further value to tools and techniques aimed at understanding and maintaining our natural resources through the development of best practices manuals.

The Stewardship Engagement and Capacity Project worked with over 400 volunteers throughout King County to learn about their backgrounds, motivations, and contributions to ecological restoration. Like the Forest Ecosystem Values work, this project targeted three specific geographies. During the first season, the research survey and interview process were piloted with volunteers working on forest restoration throughout Seattle Parks, and included involvement of over a dozen community groups and non-profits. The next season engaged over

165 volunteers working in King County forested Parks. Finally, volunteers engaged in urban forest restoration in public green spaces throughout the Green – Duwamish watershed.

Results of these in person surveys provided valuable insight on the experience of our regions hands-on environmental volunteers. A key factor of motivations for these volunteers was found to be social considerations, such as neighborhood improvement, meeting community members, and spending time with friends. These were often seen as more important outcomes of the work than the ecological considerations. Additionally, notions of legacy, and personal growth and education were considered important factors in the work. This information along with the basic demographic data is being used to refine forest volunteer outreach, engagement, and programing. These findings will ideally lead to improved recruitment and retention as well as public awareness about the impact of civic stewardship activities.

These efforts together represent not only a major concerted program for urban forest research in the Pacific Northwest, but also an important source of urban ecosystem management resources.