Background
Forest Park is a 5,100-acre, 2nd growth, urban forest located northwest of Portland, Oregon. Impacted by disturbances including logging, wildfires, invasive species, and urbanization, the forest is a structurally complex, late-successional forest (NRMP 1995). Shade-tolerant conifer juveniles lacking in urban units of the park (Broscho 2007). This study examines patterns & trends in environmental conditions where Western hemlock & Western red cedar juveniles are found.

Field Methods
Location of seedlings/saplings of Western hemlock (TSHE), Western red cedar (THPL) were mapped in 3 park units (Fig 3)
- 79 plots in North and South Management Units
- Search intensity was tracked to measure number of individuals found per hour per species (Fig 4).
- Paired plots were installed at seedling/sapling site
  - 1 regeneration microsite plot with seedling/sapling and 1 control microsite plot located randomly within 1-2 meters (Fig 1, 2)
- Biotic, abiotic measurements at sites & microsites
  - Vigor qualitatively measured for each juvenile

Data Analysis
Wilcoxon rank-based tests to compare in regeneration and control microsite plots
- Classification tree model to identify best predictors for presence/absence of each species.
- PCA used to reduce dimensionality of microsite plot variables and to detect patterns and trends.

Results

Western Hemlock (TSHE):
- 84% of regenerating juveniles were found on CWD; CWD identified as most significant predictor variable for TSHE presence in classification tree model (Fig 5A).
- Fern, herb, and moss cover identified as important predictor variable in TSHE classification tree model (17% misclassification rate; Fig 6A).

Western Red Cedar (THPL):
- Fern, herb, shrub cover identified as significant predictor variables in THPL classification tree model (38% misclassification rate; Fig 5B, 6B).

Acknowledgments: Thank you to Portland State University for financial support of this project. Thank you to my graduate committee, Jennifer L. Morse, Andés Holz for support on the project. Thank you to Marshall Johnson & Kendra Peterson-Morgan for support throughout this project. Thank you to my graduate committee, Jen Morse, Andés Holz and Jeff Gerwing for support throughout this project. Thank you to my graduate committee, Jen Morse, Andés Holz and Jeff Gerwing for support throughout this project.