

## STEP UP! ENHANCING THE BIODIVERSITY AND RESILIENCE OF COLORADO'S COMMUNITY FORESTS ALONG THE FRONT RANGE

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### PROJECT INTRODUCTION

Organized by the Colorado Tree Coalition (CTC), the Select Tree Evaluation Program (STEP) tests the performance of new and underutilized tree species and varieties in Colorado. Through careful selection and monitoring, we are able to document strong performers, evaluate growth characteristics and environmental needs, and make recommendations for future planting that increases the biodiversity and resilience of Colorado's urban and community forests. Since 2001, new tree species/varieties have been planted almost every year in many Colorado communities along the Front Range and a few along the Western Slope of Colorado.



David Elm



Purple Beech



Shawnee Brave

### INTERNSHIP GOALS

**Project goals:** The goals of this project were to collect information on all the STEP trees and determine which of them are suitable for the Front Range.

**Personal goals:** To gain experience in a field related to my major. Learning what different forestry jobs entail and practical skills of how to do them.

### APPLICATIONS TO MY EDUCATION

I am majoring in Ecosystem Science and Sustainability, so this project has given me insight into what a career in urban forestry may look like. Whether it be through outreach and educational programs like my mentor Dana Coelho with the Colorado State Forest Service does, a city forester like Kendra Boot with the City of Fort Collins, or what it is like to work for a non-profit organization like Lindsay Cutler with the Park People in Denver.

Furthermore, I have gained real experience using tools like geographic information systems (GIS), communicating with many town foresters, collecting and analyzing data, and public speaking, all within a field related to my major.

### WHAT I DID

#### Data Collection

I had to get into contact with STEP participants, which was difficult because over the 20 years many people we originally worked with were no longer with their organizations.

I used a survey to ask STEP participants what the current conditions of the STEP trees were, what caused those conditions, and if they recommend the trees for future planting/found them suitable for the Front Range.

I also created a project through a citizen science website, CitSci.org-, a CSU-led project, to collect photos, individual tree conditions, and locations of STEP trees. The participants could also email me photos and locations, which I then converted the locations into GIS shapefiles.

#### Data Analysis and Sharing

From the survey results and the photos of the trees, I created a presentation to share with STEP participants that details which trees are best suited and which are not (available to view with QR code)

I also compiled all the location data and converted them into shapefiles, using ArcGIS, to create a StoryMap with the tree information and locations for those interested in STEP results to view (QR code). I added the shapefiles of tree locations to the Colorado Tree Coalition's (CTC) Colorado Tree Collections website under the STEP organization with photos of each tree to share the results with the CTC who helped create STEP and those who view their website (QR code).

Further, I presented these results in a webinar with The Emerging Pests in Colorado (EPIC) committee of the CTC.

### Images in the Field



Gambel-bur Oak Hybrid in Wheatridge Collins



Burgundy Ussurian Pear in Fort Collins

### WHAT I LEARNED

#### Results

The David Elm, Sensation Boxelder, Espresso Kentucky Coffetree, Chinquapin Oak, Shumard Oak, and White Spruce are best suited for the Colorado Front Range. The American Sycamore, Shawnee Brave Baldcypress, Purple Beech 'Dawyck Purple,' and Frontier Elm were the least suited for the Front Range.

#### Things I learned

I got to work closely with Kendra Boot and Dana Coelho which was an amazing experience. I learned from them and other people in urban forestry that I encountered, especially seeing how passionate everyone is about urban forestry.

It was great making connections and learning practical skills of working in an environmental field. I also gained a lot of experience in problem-solving by finding missing contacts to determine how to best collect and analyze the tree data. Overall, I love how my work in urban forestry was able to tie back to helping the communities in Colorado.

### QR Codes to Results



Powerpoint



StoryMap



CTC Website

### NEXT STEPS

The results of this project can help inform future urban tree recommendations along the Front Range and throughout, which will help increase urban tree biodiversity.

Also, the work I completed can help STEP in the future years keep track of the progress of their trees, with the locations all tracked down and stored and up-to-date contacts for participants. With these out of the way, STEP trees can be analyzed beyond their survivability: by other environmental factors to determine more in-depth explanations for which trees survive and why, which can better inform future tree recommendation decisions.