

ABSTRACT

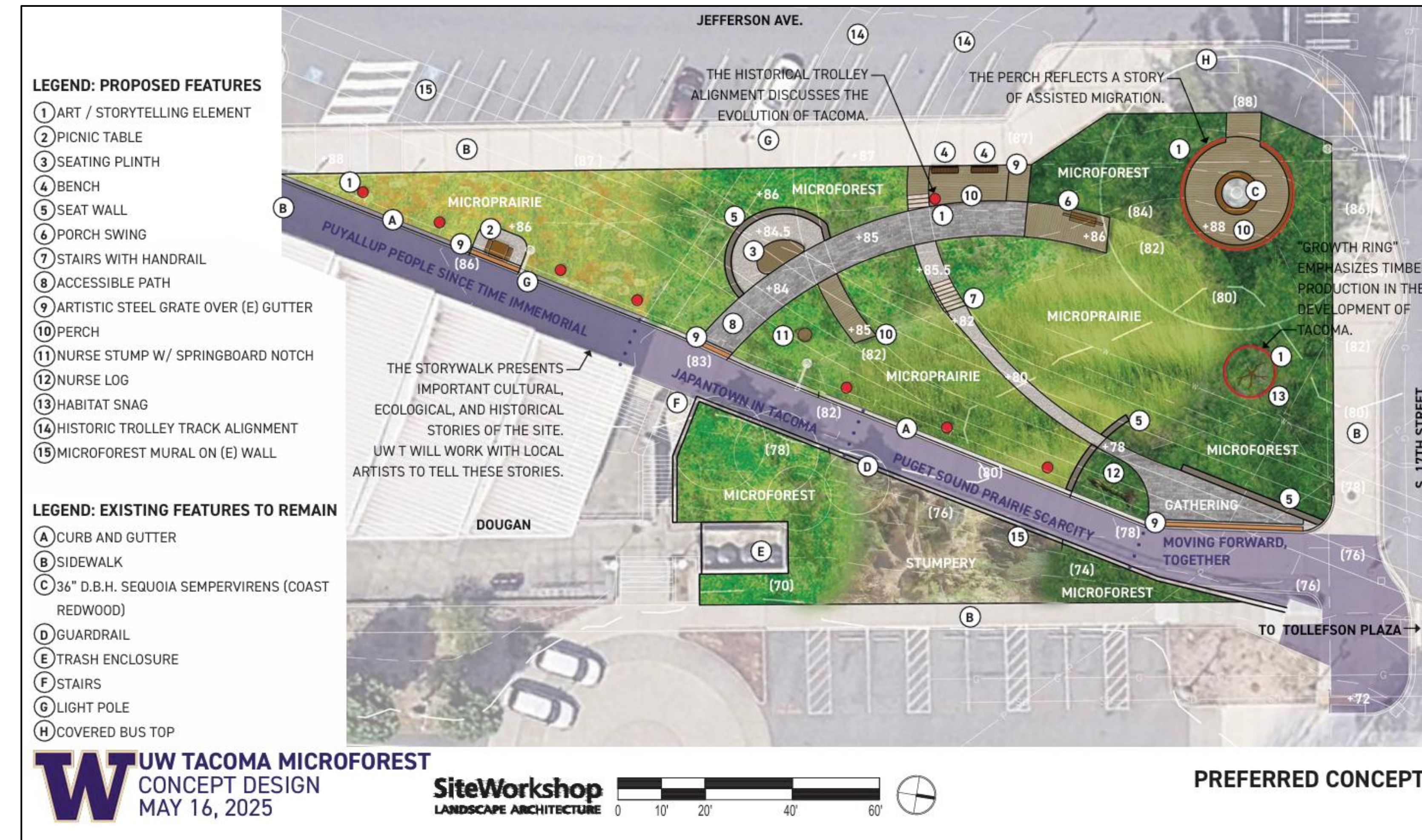
As global climate shifts, urban areas without green spaces are disproportionately impacted by climatic shifts due to a lack of environmental services such as tree canopy coverage and water permeability. Tacoma is particularly at risk as it has the lowest canopy coverage of any city in the Puget Sound region, increasing the average and potential maximum local temperatures during high heat events. This project aims to increase Tacoma's tree canopy by densely planting a heavily trafficked public space in Tacoma which currently has one of the lowest canopy coverage rates in the city, while also providing a range of additional environmental, public, and aesthetic benefits to the region. Our 1200 square foot Micro-Forest and Prairie site has been mapped out into respective zones that address certain cultural, ecosystem, and scientific concerns and will be planted with young plants of various native species. Over time we will continue planting in phases while supporting young species until they establish themselves at which time maintenance will reduce significantly. Currently we have completed one planting phase of both forest and prairie ecosystems and will complete the rest over the next few years during optimal planting dates in the fall. This will restore lost historic biodiversity to Tacoma and provide various environmental services, while creating a more climate-resilient space for students to utilize on campus which could be replicated in similar universities around the world.

TACOMA CONTEXT

- Tacoma has the lowest urban tree canopy percentage of any city in the Puget Sound region.
- From 2011 to 2018 canopy percentage only increased by 1% from 19% to ~20%.
- Historically marginalized groups see even lower rates of tree canopy. Some census blocks report tree canopy coverage at as low as 3%.
- With such low tree canopy cover, the urban heat island effect and pollution is exacerbated, with the area around UWT being 9 degrees warmer on average than parts of Tacoma with high canopy coverage.

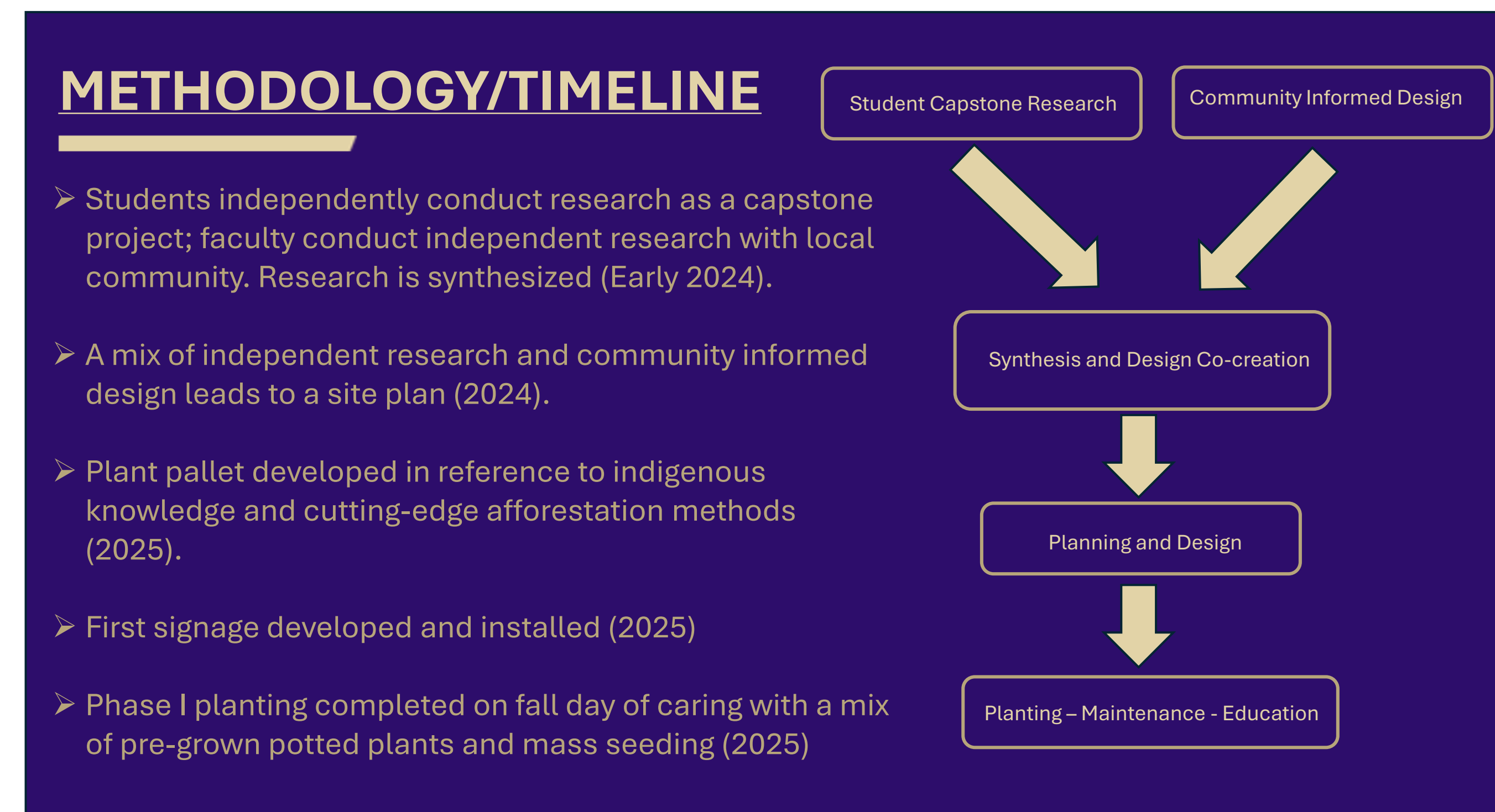
NEXT STEPS

- Complete planting over the entire project site.
- Begin construction of pathways, seating, structures, and art installations.
- Incorporate Lushootseed and informational signage within the Micro-Forest.
- Establish a maintenance plan for long term caretaking.
- Plant additional plant species as the canopy and soil structure develop.
- Gather scientific data on results of Micro-Forest growth over time and conditions in the immediate area



OBJECTIVES

- Increase green space and biodiversity in downtown Tacoma.
- Increase Tacoma's urban canopy as a way of reducing the urban heat island effect around UWT.
- Inform students and the community about the cultural history of our landscapes.
- Create an experimental landscape in support of UWT's educational and urban serving mission.



A MANAGED HYBRID LANDSCAPE

South Sound Prairie
Once covering much of the lowlands of Western Washington, South Sound Prairies house many endemic species and hold massive cultural value for local tribes. Less than 3% of this ecosystem remains.

Assisted Species/Genotype Migration
Assisted species migration refers to planting species or genotypes that may thrive in a landscape amidst a changing climate. In some cases, we plant native species but a nonnative genotype (i.e., Douglas Fir sourced from Northern California/Southern Oregon planted in Puget Sound), anticipating that the introduced genotypes will do better in the coming years than the existing genotypes. The micro-forest site at UWT will experiment with this method.

Miyawaki Forests
An afforestation method that calls for dense planting and layering in small plots of land, the "Miyawaki method" results in faster growth and dense canopy coverage ideal for urban environments.

