Continuing Project

Intraspecific Hydraulic Responses of Commercial Tree Seedlings to Nursery Drought Conditioning

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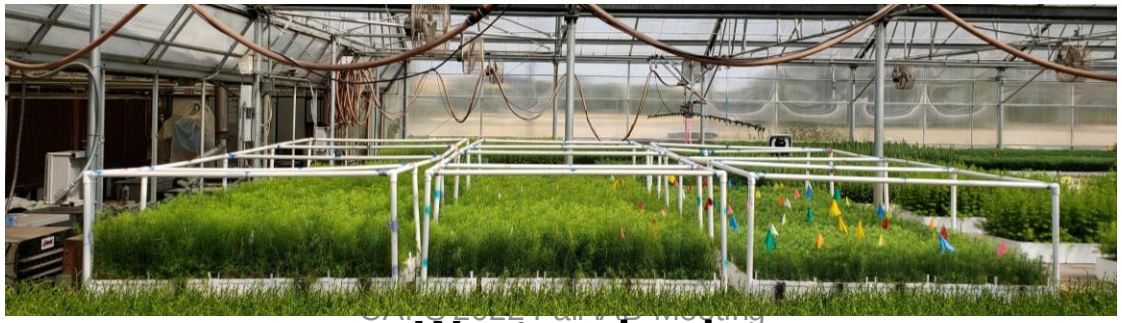
Project Overview

Our **objective** is to examine seedling physiology and root system architecture in response to nursery-induced drought conditioning of coastal Douglas-fir, western larch, and black walnut seed sources across a range of maternal tree environments

Douglas-fir

Black walnut

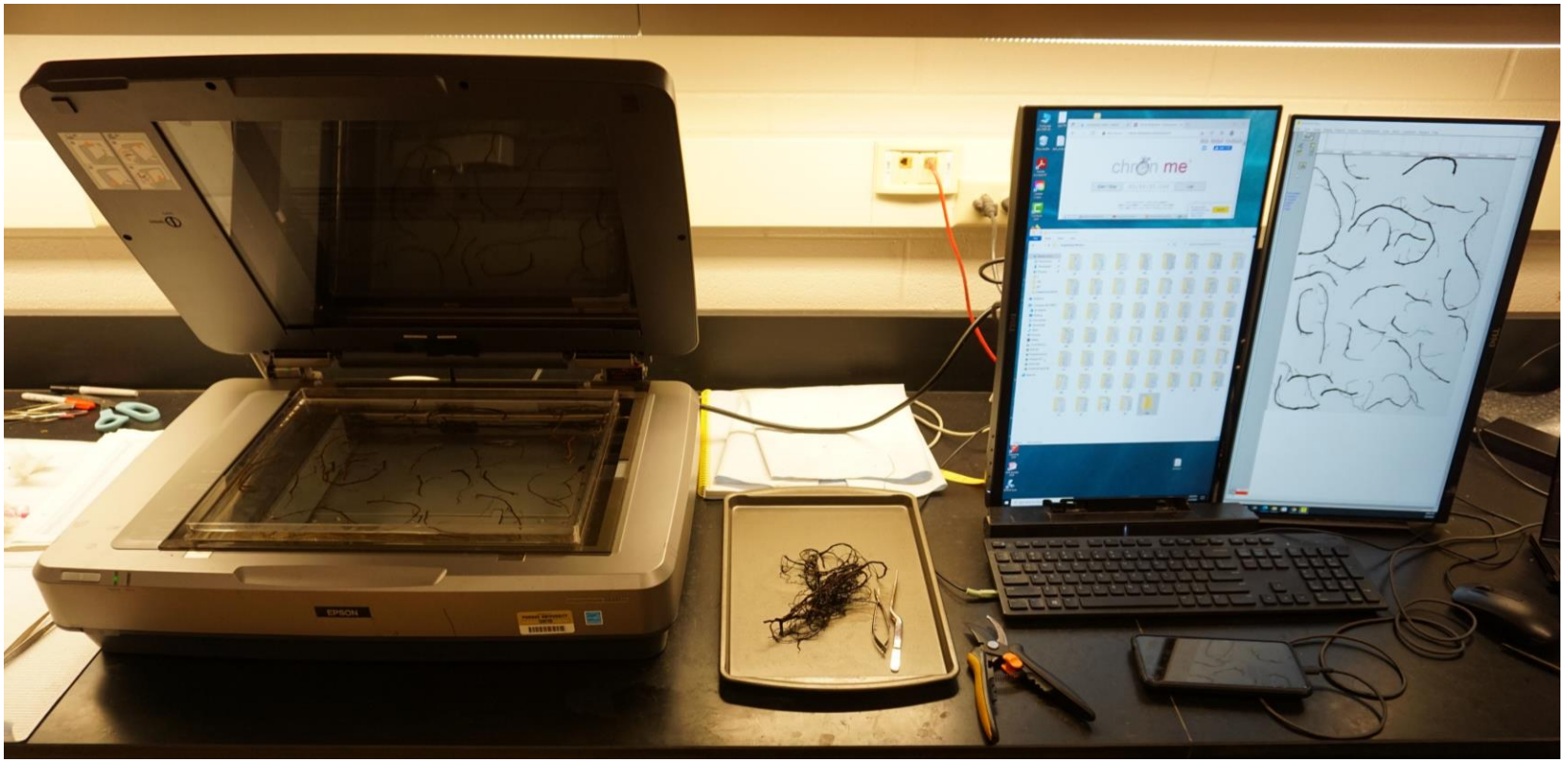


Western larch

Simulated outplanting

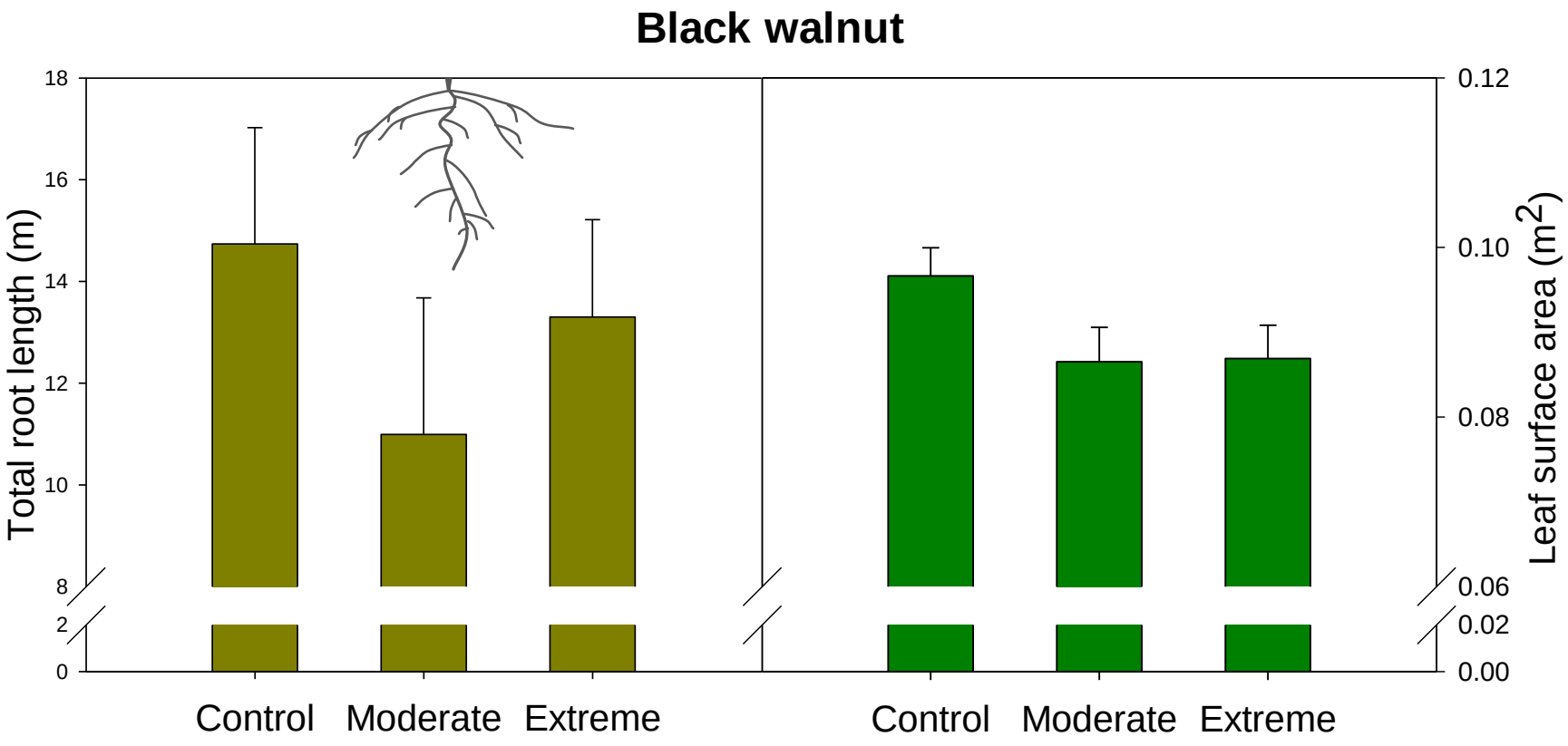
- Controlled environment conditions
  - Moisture
  - Growing media
  - Nutrient availability
  - Temperature
  - Light

Simulated outplanting



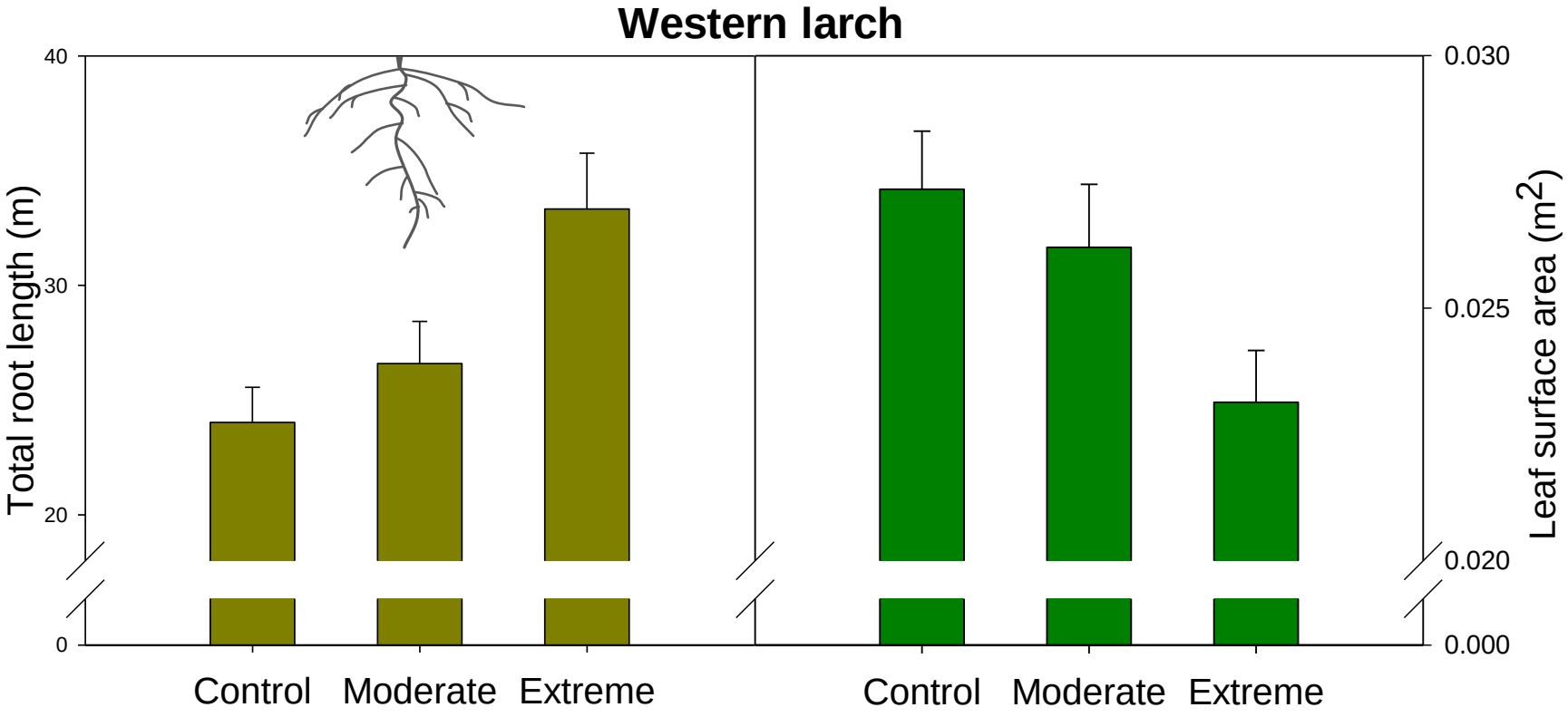
Current Progress

- **Black walnut** seedlings grown under extreme drought preconditioning treatments developed a root system of similar length than with less leaf surface area.



Current Progress

- **Western larch** seedlings grown under extreme drought preconditioning treatments developed a **more extensive root system** with less leaf surface area.



Future Plans

- Data from Simulated outplanting experiment will help evaluate the effects of **drought conditioning** on the development of **new roots** and its cascading effects on seedling **hydraulic conductance** and **photosynthetic rate** of forest tree species

- Data from the three experiments: Outplanting, Simulated outplanting and Digital phenotyping through X-ray CT is currently being analyzed and the manuscripts are under development