

Augering and Forest Edge Effects on the Growth of *Pseudotsuga menziesii*

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Riparian forests are a vital component of the Puget lowland ecosystem and have a history of degradation, leading to declines in river and salmonid health. Some restoration research suggests that planting *Pseudotsuga menziesii* (Douglas-fir) near a forest edge and using an auger during planting may improve seedling survival and growth, which has historically been low due to agricultural and residential impacts. The forest edge helps buffer extreme climates while providing access to established mycorrhizal systems and augering can aid in seedling establishment by facilitating root growth and access to moisture. We used a factorial design to examine the effects of auger-planting Douglas-fir seedlings near (3-5m) and far (20-25m) from forest edges across three sites representing different drought conditions. These sites included Ohop valley, Powell, and Lackamas flats which represented moist, intermediate, and dry conditions, respectively. We found that seedlings planted near the forest edge had a statistically significant increase in survival rates, and augering provided marginal benefit to survival. The growth (height and diameter) of our seedlings was not significantly affected by either treatment. Our study suggests that planting near the forest edge may benefit the early survival and growth of Douglas-fir seedlings, but augering provides minimal improvements. With this information, restorationists can develop more efficient planting strategies and determine when the use of an auger may be effective. Additional research may be required to fully understand the relationship between augering and forest-edge effects.