

Webster Creek Conifer Underplanting Experiment

Large woody debris in streams functions to create complex stream habitat important to salmonid fish. In some riparian areas, such as along Webster Creek, there are few conifers regenerating in the second-growth riparian forest dominated by red alder. The shading of the alders and the dense understory of salmonberry, vine maple, and red elderberry hinder conifers from becoming established and growing. Underplanting of conifers is a restoration measure to increase the potential for recruitment of conifers as future large woody debris.

We implemented a conifer underplanting treatment along Webster Creek in 2001 to increase the abundance of riparian conifers, and designed the treatment as an experiment to evaluate different species and treatment types. The results of this experiment will help us guide underplanting treatments elsewhere in the watershed.

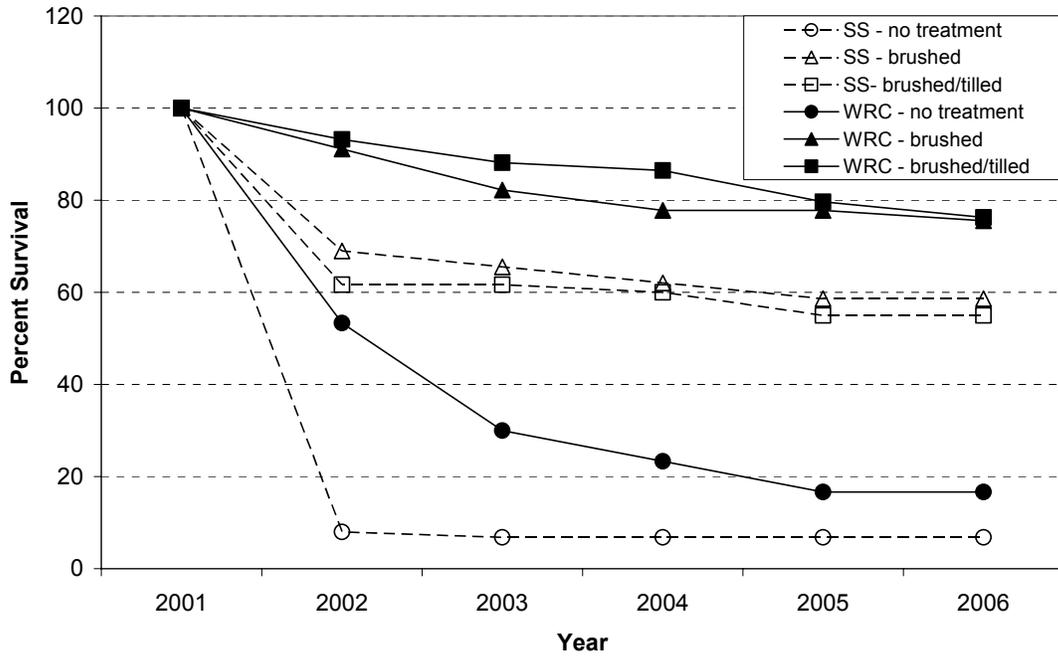
In the Webster Creek underplanting experiment, we planted western red cedar (WRC) and Sitka spruce (SS) seedlings in transects subject to three different treatment conditions:

- 1) understory brushing without tilling,
- 2) understory brushing and tilling, and
- 3) no brushing or tilling.

After three years, we also rebrushed the understory in half of the brushing-only treatment for western redcedar.

The results of the experiment, monitored through 2006, are shown in the accompanying graphs. The experiment showed that understory brushing was essential for adequate survival of seedlings, but that tilling had little additional effect. Western redcedar generally had higher survivorship than Sitka spruce. Western redcedar in the brushing- only treatment that was subsequently rebrushed had the highest growth rate, and Sitka spruce in the brushing-only treatment had the second highest growth rate. After five years of growth, the other species-treatments differed little in cumulative growth.

Webster Creek Underplanting Experiment Seedling Survivorship



Webster Creek Underplanting Experiment Cumulative Height

