

NATIVE VERSUS ACTIVE REVEGETATION ON ABANDONED MINE LANDS IN HIGH ELEVATION WETLANDS¹

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Abstract: Wetlands and riparian areas are critical habitats in the inland west for overall species and landscape diversity. These areas were often the sites of hard rock and placer mining beginning in the late 19th century. The result of these mining activities is toxic and persistent pollutants, including heavy metals associated with ore bodies, mine tailings and acid mine drainage. The Ontario Mine, in the Little Blackfoot River drainage in west central Montana, is partially located on National Forest land, and was reclaimed in 2002. Bare tailings piles were removed, replaced with clean backfill and soil, and revegetated through seeding and planting of native plants. Tailings that were naturally revegetated were left in place. There has been no treatment of adit water that drains into the wetland, so the reclaimed site will continue to receive low pH, high metal concentration water inputs. The main objectives of this study are 1) to compare survival rates and tissue metal concentrations for *Carex rostrata* (beaked sedge) grown from seeds collected on site versus commercially available seeds; 2) to measure survival rates and metal uptake of *Alnus sinuata* (sitka alder) and *Carex aquatilis* (water sedge) across a contaminated-water gradient; and 3) to compare plant cover and frequency, and tissue metal levels across native plant species. Five of these species occur in both contaminated and uncontaminated wetlands, and an additional two species only occur in the contaminated site. We are using an adjacent uncontaminated site as a baseline for vegetation dynamics and metal levels in uncontaminated vegetation. Data on water and sediment metal levels on the Ontario Mine site is being gathered by Chris Gammons, Montana Tech, and will be compared to plant tissue metal concentrations. Baseline vegetation and metal information gathered in 2002 will be presented. Preliminary analysis of metals in the native species shows variable metal levels by species, both above- and belowground. The reference site shows significantly lower metal concentrations, although this varies by plant species and metal.

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