Development of Acid/Heavy Metal-Tolerant Cultivars

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Current reclamation efforts to revegetate hardrock minelands in western Montana have met with limited success. In the Upper Clark Fork River Basin, for example, there remains vast areas of barren and unproductive land. The majority of native species currently being seeded on hardrock mine reclamation projects were developed for revegetaion of coal strip-mines in the dry, high pH soils of eastern Montana. This plant material is not well adapted to the acid/metalliferous soils and local climatic conditions found at hardrock mine sites. The Development of Acid/Heavy Metal-Tolerant Cultivars project seeks to address this problem by selecting plant ecotypes indigenous to western Montana that demonstrate superior tolerance to acid/heavy metal soil conditions. In 1995, two initial evaluation plantings were constructed on the Anaconda Smelter Superfund Site. Plant materials in this study were assembled from both wildland collections and commercial seed sources. The plots collectively tested 95 species consisting of 51 grass, 29 forb, 14 shrub, and 1 tree species. After three growing seasons, the superior performing entries were identified. These better performing collections are presently being tested and compared to other accessions and cultivars of the same species in a comparative evaluation planting (CEP) near Anaconda. Concurrently, 13 grass, 6 forb, and 7 shrub species are being grown at the Bridger Plant Material Center (BPMC) to determine cultural management techniques and to increase the supply of seed. The results from the CEP and the success of seed production will provide valuable information for the selection of locally indigenous plant materials. Formal plant release will be via the pre-varietal process as Selected Class material. Foundation seed for the releases will be maintained at the BPMC for distribution through the Montana and Wyoming Crop Improvement Associations to commercial seed producers.

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