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SELECTING SPECIES FOR ARID LAND REVEGETATION DIVERSITY

Parts of arid rangelands [10 inches (250mm) or less annual precipitation] in the Big Horn Basin and the Red Desert of western Wyoming are mined for coal, uranium, bentonite, gas and oil. Success in revegetating these mined sites has been limited, in part, because of the few indigenous, drought-resistant species available. The sparse vegetative cover on mined land areas results in accelerated wind and water erosion. In 1980, the Natural Resources Conservation Service, Bridger Plant Materials Center (PMC), started a cooperative project to identify additional species that have potential for reclamation and to evaluate techniques for their successful establishment on arid mine sites. In the spring and fall of a two-year period, nearly 300 plant collections, selections, and related cultivars were planted at two mine sites. The overall best performing species on these sites were thickspike, bluebunch, streambank, western and slender wheatgrasses; Russian wildrye; basin wildrye; bottlebrush squirreltail; Sandbergs bluegrass and Nuttall's saltbush from spring plantings. Bottlebrush squirreltail, *Elymus elymoides* (Raf.) Swezey; Sandbergs bluegrass, *Poa Sandbergii* Vasey; and Gardner saltbush, *Atriplex nuttallii* S. Wats., were established in seed increase planting at the Bridger PMC. In 1997, two advanced evaluation plantings consisting of replicated multiple species mixtures were established. Four native mixtures: sandy (species adapted to sandy sites), clayey (species adapted to clayey sites), old mix (made up of commercially available cultivars) and new mix, (made up of new and potential cultivar releases) are being evaluated in the arid Big Horn Basin of Wyoming. They are being evaluated for their compatibility, ease of establishment, and contribution toward diverse plant communities in aridland revegetation.

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