

# CREATING A DIVERSE AND EROSIONALLY STABLE HABITAT AT LA PLATA MINE, NORTHWESTERN NEW MEXICO<sup>1</sup>

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**Abstract.** La Plata Mine is located in Northwestern New Mexico. The pre-mine landscape was characterized by rough broken topography with moderately steep to steep scarp and dip-slopes. The majority of the pre-mine lease area consisted of south facing dip-slopes. The Mine was faced with designing post-mining landscapes that had a 35% spoil swell. Potentially, the new habitats would have longer and steeper slopes than the pre-mine slopes. The design also has to consider the requirement that post mine landscape where stable having a soil-loss rate less than or equal to pre-mining conditions. The final surface configuration (FSC) was designed with the primary purposes of 1) creating habitat diversity, 2) and maintaining surface stability. Special land features such as talus slopes, scalloped slopes, rock-piles, rock-rims, water harvesting features, and geomorphic patterned drainages, were included to meet these objectives. In addition, variable soil substrates, including suitable spoil materials, and coarse textured topsoil materials were targeted for steep slopes to minimize soil loss and to promote shrub establishment. Finer textured topsoil materials were targeted for lowlands and valleys to promote establishment of grasses. Stability of the final surface design was validated using the RUSLE model. Various seed mixtures were applied to the diverse landscape to further promote biodiversity in the habitats. Well-designed reclamation plans can enhance post-mine biodiversity through the use of variable landscapes, soil substrata and seed mixtures.

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