

Pleasant Valley Meadow Erosion Control Project Summary:

Pleasant Valley Meadow is host to one of the few remaining habitats with native grasses and forbs on the Shivwits Plateau. Most of the meadows on the Shivwits have been exposed to excessive erosion and are dominated by sagebrush, which are symptoms usually caused by overgrazing. Cattle grazing has been discontinued at the Pleasant Valley Meadow and preservation of the native meadow system is a high priority in Lake Mead's management. In the summer of 1997, resource management staff discovered newly established gullies within the meadow which are signs of early stages of undesirable erosion. If the gullies continue to develop, the unique native grass and forb communities may be reduced and replaced by a sagebrush dominated community common to the Shivwits area. LAME RM staff decided that management actions should be taken to reduce the undesirable erosion and attempt to preserve the existing unique plant community of the meadow. Some urgency was needed due to the predicted El Nino weather event capable of producing large amounts of runoff and accelerating erosion to the meadow. Rick Inglis, Hydrologist from the NPS Water Resources Division, provided on site professional expertise to the Lake Mead resource management project crew.

It was decided to construct three types of experimental erosion control devices in "at risk" areas within the meadow:

- 1) A loose rock diversion was constructed in a wash to divert a portion of the water to a broader area of the meadow which will reduce water volume and erosional velocity from a concentrated area. Rock was loaded into wheel barrows by hand from surrounding hillsides and hauled to the diversion site for placement.
- 2) Sagebrush mattresses were placed in strategically located areas to inhibit small gullies from further development. These biodegradable mats should collect fine sediments which will create ideal micro climates for native grasses to establish. Once these grasses establish they should provide long term protection against further undesirable erosion long after the constructed mats have degraded in place. The mats were constructed by cutting sagebrush with chainsaws and smashing the brush in place. Then stakes were pounded around the perimeter and interior of the mat. Twine was strung tightly from stake to stake resembling a quilt pattern to hold the brush in place. Then juniper logs were placed on top of the mats to anchor the mat so that running water from rainfall events would not wash them away.
- 3) Wooden survey stakes were driven across the wash bottom about 18 inches apart to create a stake field designed to reduce erosion by slowing water down, and catching debris and sediment. This sediment will promote a favorable environment for grasses to establish which are "nature's own ideal erosion control devices".

The project was completed in two days in October 1997. The erosion control devices are considered experimental since they have not been extensively applied in the field. Photo monitoring of the project site was initiated and will continue on an annual basis.