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BLM Uncompahgre Field Office RMP Planning Fact Sheet

Water Quality and Soils

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The BLM Uncompahgre Field Office (UFO) is revising the Resource Management Plan (RMP) for the Uncompahgre planning area. The Uncompahgre RMP will provide detailed information about the current state of resources on public lands within the planning area, and set forth a plan of action for managing those resources for the next twenty or so years under the BLM's dual mandate of *multiple use* and *sustained yield*.

Soil Stability Promotes Good Water Quality

Mesozoic (Cretaceous, Jurassic, and Triassic) sedimentary rocks throughout the planning area erode into soils containing gypsum and selenium minerals. Dissolved concentrations and loads of these two salts in local rivers can create water quality concerns for humans, animals, and plants.

Wind and precipitation erode sediments and salts from hillslopes. Wind erosion can move fine-grained salts to ephemeral and intermittent stream channels, and summer storms then flush those accumulated salts into rivers. Research has found that disturbance of soil surfaces can cause increases in these sediment and salt yields.

BLM Responsibilities for Salinity Control

The BLM maintains a salinity control program in the Upper Colorado River Basin to reduce salt inflow. A 1984 amendment (Public Law 98-569) to the **Colorado River Basin Salinity Control Act** directs the BLM to implement a comprehensive program to minimize salt loading in the Colorado River Basin. The BLM must implement effective salt-loading control on public lands. Most projects are integrated, and land management efforts often have multiple objectives such as riparian health, habitat enhancement for threatened and endangered species, rangeland health, minimization of impacts from energy development, and route designation plans for recreational vehicles.

More direct salinity control projects include seedings, plugging saline-flowing wells, proper road construction, and sediment retention dams. BLM land use plans are key to setting up management measures for areas that contain saline/seleniferous soils. In addition to our on-the-ground implementation and planning projects, the BLM conducts science studies in collaboration with other agencies to understand transit-source mechanisms and potential of salts to reach rivers, identify source areas, and quantify loads.

Section 202 of the Colorado River Basin Salinity Control Act

The Secretary (of the Interior) is directed—

(1) in the investigation, planning, construction, and implementation of any salinity control unit involving control of salinity from irrigation sources, to cooperate with the Secretary of Agriculture in carrying out research and demonstration projects and in implementing on-the-farm improvements and farm management practices and programs which will further the objective of this title;

(2) to undertake research on additional methods for accomplishing the objective of this title, utilizing to the fullest extent practicable the capabilities and resources of other Federal departments and agencies, interstate institutions, States, and private organizations.

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Use of Geographic Information Systems Analysis

Erosion-control measures enacted on public lands can stabilize soils containing gypsum (calcium sulfate) and selenium and thereby enhance water quality. In the planning area, these sensitive soils can be identified through Geographic Information System (GIS) analysis and allow management measures to be developed according to the predominant resource use.

Impacts from natural disturbances such as flooding can also be tracked through GIS analysis. Salt loading is usually worse during episodic events (such as summer storms) and very little surface-runoff loading could occur during other times of the year. GIS base layers for analysis would include elevation (used for determining percent of slope and aspect), geology, soils, water networks, and types of public land use. Zonal analysis of the overlying base layers illustrates geomorphology, spatial extent of salt-contributing soils, types of activity, and proximity to water.

Management erosion control measures can be better directed with GIS, because it allows planners and resource specialists to locate, examine, and quantify the extent of an area with the concentration of salts in that area (i.e., develop a potential load to a water body).

Sensitive Soils

Sensitive soils include a wide variety of soil types and characteristics, but all have one or more limiting characteristics that would make them difficult to reclaim if they are disturbed. Limiting soil chemical features include sodium, soluble salts, gypsum, and selenium. Limiting soil physical characteristics include soils that are susceptible to wind and/or water erosion, and soils that are protected by biological soil crusts.

Sensitive soils can be identified using information from published soil surveys, ecological site descriptions, local monitoring records, and field data, and research studies. Once identified, the areas containing sensitive soils can be used in site-specific planning to help determine whether additional BMPs or mitigation measures would be required to protect them.

The BLM wants your input…

- **Do you know of areas where soil disturbance has created conditions that should be addressed? If so, where?**
- **Do you know of areas that should be protected or stabilized in order to prevent potential resource damage? If so, where?**

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