

Natural Resources Conservation Service

# Soil and Plant Science Division

Southwest Soil Survey Region



## Santa Fe MLRA Soil Survey Office

### Rapid Assessment Methodology (RAM) for Slope Wetlands in New Mexico

#### Purpose

The Santa Fe MLRA Office provided assistance to a team tasked with developing a new EPA-funded Rapid Assessment Methodology (RAM) for slope wetlands located in mountainous headwaters in New Mexico. RAMs are developed as a consistent way to evaluate the condition of a wetland and assign a score. This score can be used as a tool for a variety of needs such as ranking wetlands for funding restoration projects, or simply to see how the state's wetlands are changing over time. This RAM will be the third for New Mexico, following those developed for playas, riverine, and riverine lowlands.

Development of a wetland RAM requires collaboration between a team of specialists to assemble a list of comprehensive metrics that characterize the condition of a wetland with respect to its ability to provide environmental services and functions. The RAM team usually includes local experts from multiple disciplines, such as ground and surface water hydrology, plant and wildlife biology, and soil scientists.

#### Key Outcomes and Products

Of the many challenges associated with development of this RAM is the ability to consistently rank and score wetlands across a variety of slope wetland types. For instance, different sizes and scales of slope wetlands range from upper valley swales where the landscape is discharging groundwater onto steep terrain, to larger valley bottoms that may have artesian groundwater such that extensive fens with deep histosols occur. The former may only experience saturation of the soil profile for a few months during spring melt-off, while the other may never experience a water table that recedes below the ground surface.

Another challenge is to keep the RAM focused on the concept of "slope wetlands" without crossing into riparian systems. At first this seems like a straightforward task: look for a stream channel with a classic flood plain and stream terrace system. However, every slope wetland eventually leads into a riparian channel lower in the watershed, and the exact location of transition can be tricky to pinpoint.

Including the soils portion of the RAM is important for a variety of reasons. In many degraded wetland systems, the hydrology has been impacted such that there are few, if any, hydrophytic plants or clues to how the system functioned in the recent past. Identification of hydric soils properties permits the evaluation team to look at the historic boundary of the wetland and make



observations as to the changes over time caused by the sum of all impacts and disturbances. Furthermore, there are features within hydric soils that can suggest how the system is functioning or failing.

When the wetlands RAM is completed, New Mexico will conduct an inventory of its slope wetlands statewide. The knowledge and information gained from this inventory can be applied in the conservation planning process to help evaluate and rank any wetland restoration projects. It may also be of great value when designing upland conservation practices in proximity to slope or other wetlands with respect to the impact that the changes in land use or condition may have on their function.



*Figure 1. The New Mexico RAM Team evaluates a slope wetland on Vermejo Ranch, in the northern part of the Sangre de Cristos.*



*Figure 2. Soil plugs taken from slope wetland in NM.*



*Figure 3. Head-cut working into a larger slope wetland complex. Note the presence of flowing water at the base, a sign of active draining.*