Salts as an indicator of hydric conditions in Las Vegas Wash, Nevada. (S10-merkler220754-Poster)

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Abstract:

Runoff from Las Vegas Valley, Nevada, drains through a local system of tributaries into Las Vegas Wash and finally Lake Mead and the Colorado River. Documentation of the morphological features of hydric soils within Las Vegas Wash is difficult to interpret because of reddish colored parent materials, high pH and low organic matter content of these soils. This study improves the understanding of the site specific migration and transformation of salts in the wetlands through geochemical adsorption by sediments under cyclic conditions of reduction and oxidation. We use scanning electron microscopy (SEM) with (EDS), X-Ray Diffraction (XRD), and whole soil chemical analyses to determine salt mineralogy, crystal habits and profile chemistry of two soil profiles in Las Vegas Wash. Fifty-eight samples were extracted and mounted for SEM and (EDS) analyses. 369 SEM images and 438 EDS analyses were used to determine the mineralogy of the salts in these profiles. We interpret the distribution of soluble salts to be seasonal zones of saturation in which subsurface evapotranspiration occurred immediately above the water table, providing a potential local indicator of hydric soil conditions.

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