

## **Documentation of Iron Monosulfide Improves Hydric Soil Identification in the Arid Western U.S.**

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Wetlands in the arid western U.S. are especially valuable for providing ecosystem services including critical habitat for rare and endangered species, water filtration and storage, and flood abatement. However, important wetland areas have remained unregulated in the arid western U.S. due to issues with wetland identification caused by gaps in the knowledge of hydric soils. The identification of hydric soils in the arid west is typically challenging due to high concentrations of salts, high pH, and low organic matter accumulation. Iron monosulfide (FeS) concentrations are an important, commonly overlooked, soil morphological feature indicative of strongly reducing soil conditions (i.e., sulfate reduction). Insoluble, black-colored FeS concentrations have been observed in arid wetlands, however, field identification has been problematic due to the lack of information about their genesis. This presentation will discuss the processes involved in the development and expression of FeS in problematic soils of arid wetlands located in California, Colorado, Nebraska, New Mexico, Utah, and Wyoming. This research has contributed to improving our understanding of the identification, formation, and distribution of FeS in wetland soils, including the recent development of a new Field Indicator of Hydric Soil (Iron Sulfide – A18), applicable nationwide.