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Understnding Oxyaquic Classification in Light of Filed Data

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Hydropedologic studies related to seasonal saturation and hydraulic conductivity add to our knowledge to make accurate land use interpretations, particularly as related to land application of waste (liquid and solids) and many urban land uses. Soils mapped in the Carolina Slate Belt in the southeastern region of the United States, including the benchmark Tatum and Chewacla Series, are no exception to this and proper identification of seasonal saturation in these soils is critical as urban and suburban development increases in this region. Soils related to the catena may lack the typical 2 chroma redox depletions commonly used to identify seasonal saturation even though high water table is often directly observed in these soils. When a seasonal high water table is determined, the soil may be classified as oxyaquic. However, if 2 chroma depletions are absent (or present at deeper depths than seasonal saturation) local or state land use codes may misidentify the depth to saturation. The hydropedologic data from this study has shown that the redox depletions in this area are indeed related to saturation. This fact has been debated by consultants and local health departments. Prior to this study one prevailing view was that the low chroma features were simply due to stripping or leaching of Fe in old cotton or tobacco fields and in no way was related to saturation. Based on the evidence in this study the interpretation of the redox depletions, oxyaquic conditions, and occurrence of episaturation will need to be reconsidered.