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A drying climate is acidifying podosols and groundwater in SW Australia.

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A drying climate and abstraction of groundwater from very sandy soils on the Swan Coastal Plain of south-western Australia has caused the dessication of peats and humus podosols in swale wetland locations.Small amounts of microcrystalline pyrite and (rarely) elemental sulfur in these soils are rapidly oxidised which greatly decreases soil solution pH. Dissolved Al and As increase greatly with considerable damageoccurring to biota and infrastructure .The presentation will include a discussion of the nature and distribution of pyrite in these podosols, the inadequate pH buffering of the soils and the unsuitability of standard chemical tests for sulphide for use on these materials. The importance of electron optical and synchrotron XRD analysis in identifying very minor amounts of pyrite and sulfur in soils will be demonstrated.