

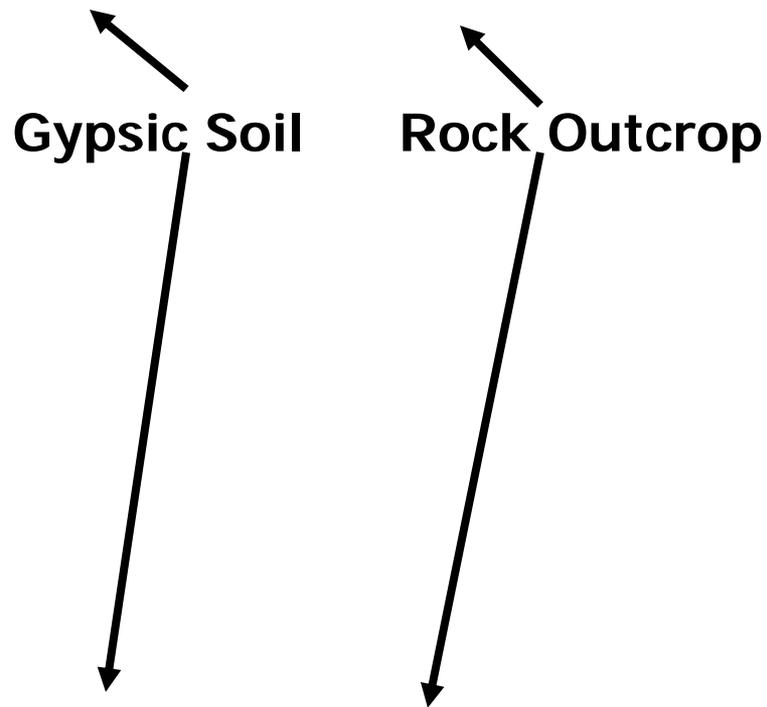
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Gypsic Soil

Rock Outcrop



Landsat 7 ETM+

Bands 7, 5, 1 w/DEM

= SWIR (2.02-2.35 μm ,
SWIR (1.55-1.75 μm), Blue









space

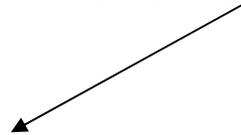
quantitative

– N = Spatial Position

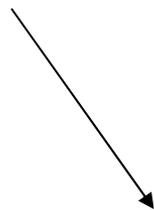




Reflects Near Infrared (NIR)



Absorbs
Red



http://landsat.usgs.gov/tools_viewer.php









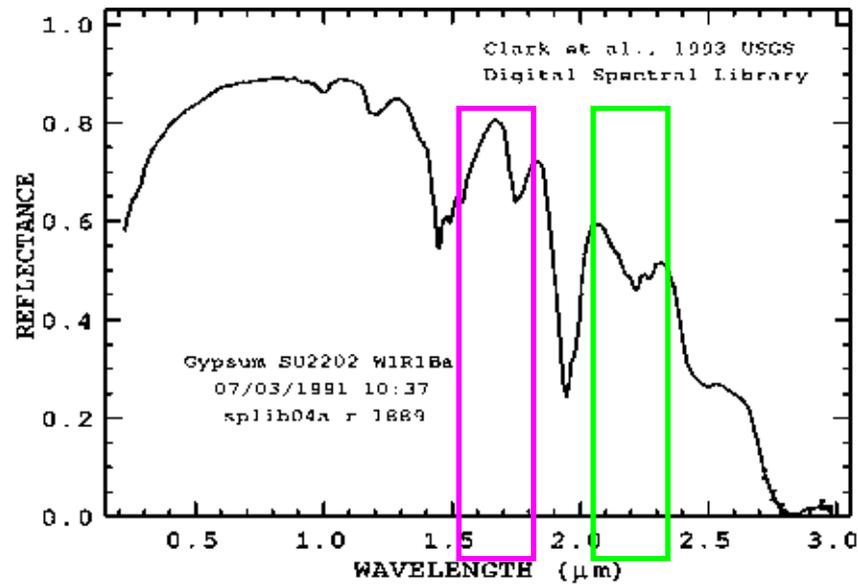
Calcite

Montmorillonite

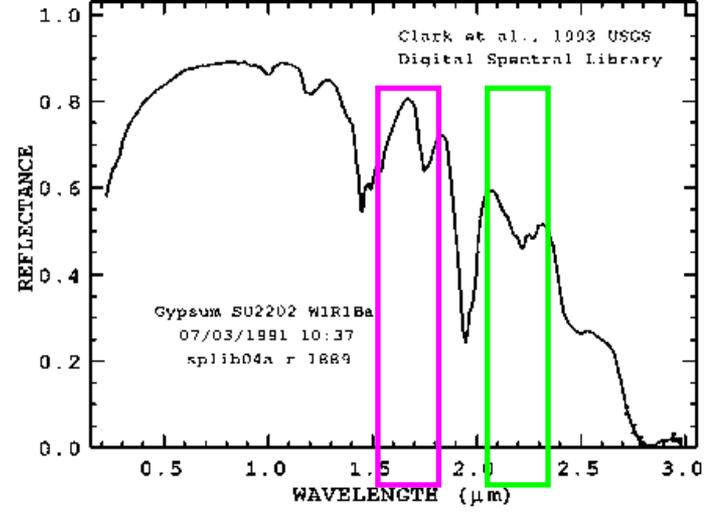
Hematite

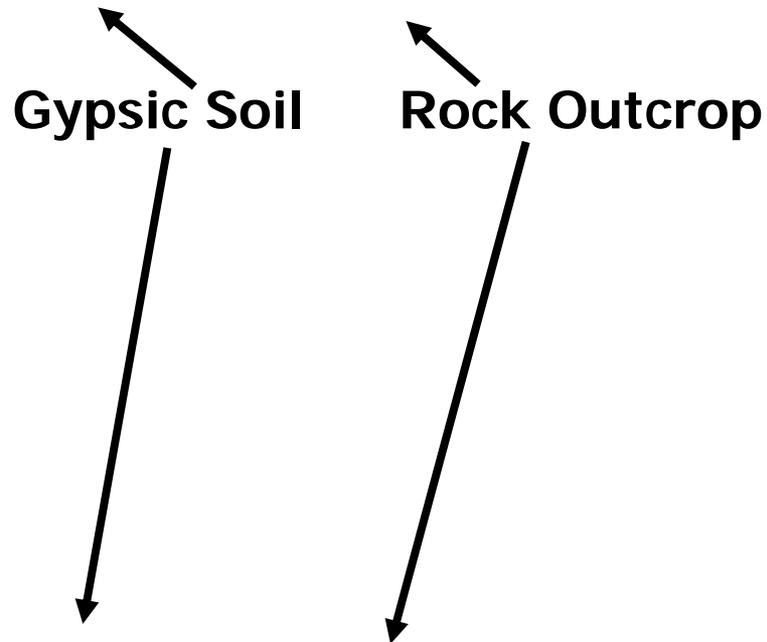
http://ldcm.usgs.gov/tools_viewer.php

← Short-wave Infrared (SWIR) →









Landsat 7 ETM+

Bands 7, 5, 1 w/DEM

= SWIR (2.02-2.35 μm ,
SWIR (1.55-1.75 μm), Blue

Thematic Output for Gypsic Index

Surficially
gypsiferous



Rock outcrop

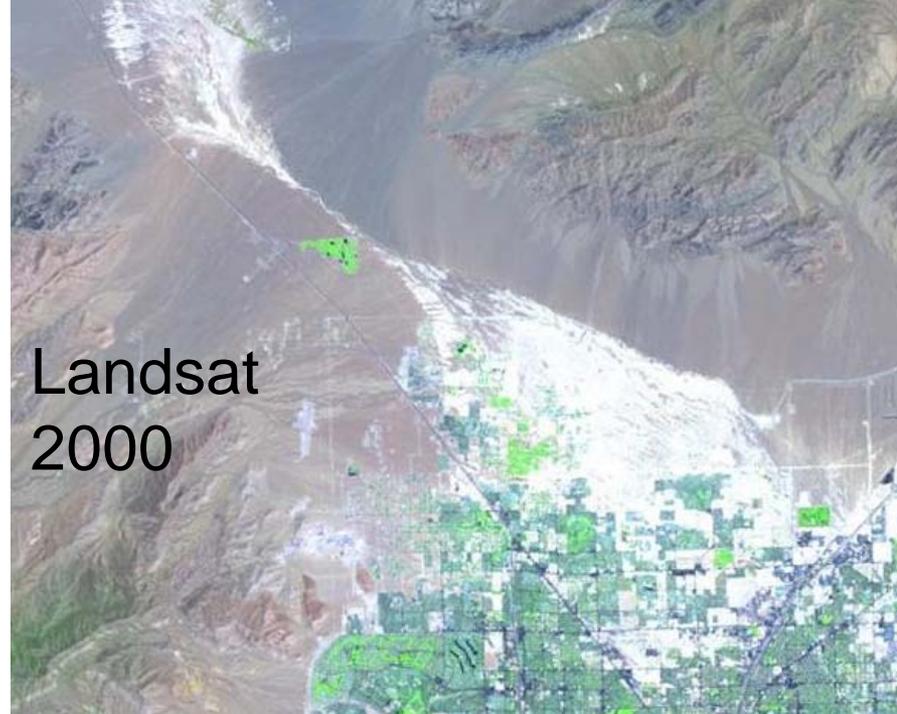








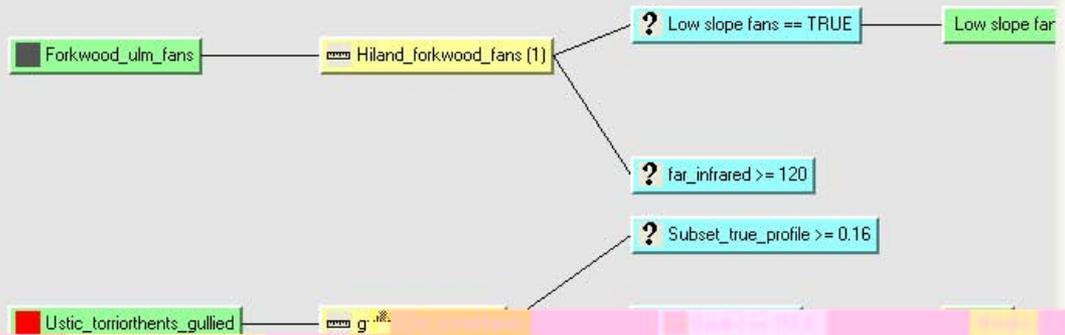
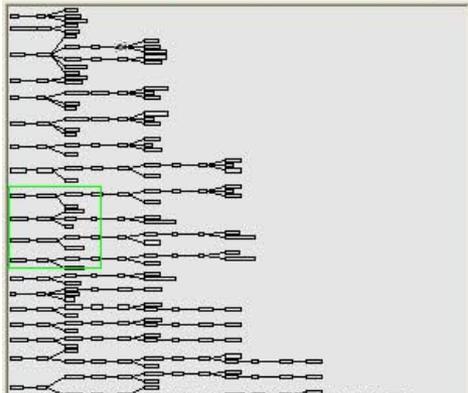
Landsat
2000



ASTER
2004







Rules used in knowledge-based decision tree classification for generalized soil associations and the eight specific map unit classes evaluated in the accuracy assessment.

Map Unit Number	Class Name	Classification Rules
<u>Generalized Associations</u>		
NA	Fluvial Soils	Relative elevation to Powder River $\leq 6\text{m}$ and slope $< 2\%$, or, $\leq 3\text{m}$ from , or $\leq 5\text{m}$ in height and $\leq 50\text{m}$ distance of small streams.
NA	Badland soils	Soil enhancement band 2 (iron) ≥ 67 and slope $\geq 8\%$ and not Fluvial Soils
NA	Uplands	Relative elevation to $\geq 60\text{m}$ and not Fluvial and not Badland Soils
NA	Alluvial fans	Not Fluvial and not Badland and Not Upland Soils
<u>Specific Map Units</u>		
938	Water	Ten meter buffer of Powder River Line Coverage.
611	Draknab sandy loam, 0-3% slopes	Fluvial soils = true and soil enhancement band 2 > 113 and relative elevation to Powder River $\leq 5\text{m}$, or, fluvial soils = true and relative elevation to ≤ 1 and orthophoto value > 150 in blue band, does not meet the requirements of any previous decision.
613	Haverdad-Kishona loams, 0-3% slopes	Fluvial soils = true and Relative elevation to the river $\geq 10\text{m}$, or fluvial soils = true and slopes $> 6\%$, does not meet the requirements of any previous decision.
616	Clarkelen-Draknab complex, 0-10% slopes	Fluvial soil = true and Near infrared Landsat > 60 and Fractional vegetation > 38 , or, Fluvial soils with CTI < 1 , does not meet the requirements of any previous decision.
612	Clarkelen fine sandy loam, 0-3% slopes	Fluvial soils = true and fractional vegetation > 34 , does not meet the requirements of any previous decision
649	Haverdad-Clarkelen complex, 0-3% slopes	Other fluvial soils dominated (dominated by sage and grass community), does not meet the requirements of any previous decision.
684	Samday-Shingle-Badland complex, 10-45 % slopes	Badland soils with slopes ≥ 15 and mean slope length factor > 1.85 , or, badlands having slopes $> 50\%$, does not meet the requirements of any previous decision.
709	Theedle-Shingle loams, 3 to 30 % slopes,	Badland soils = true and mean slope length factor $> .8$ and < 1.75 , does not meet the requirements of any previous decision.

