

Determining SHWT

A draft treatment of rules ported for
Landjudging

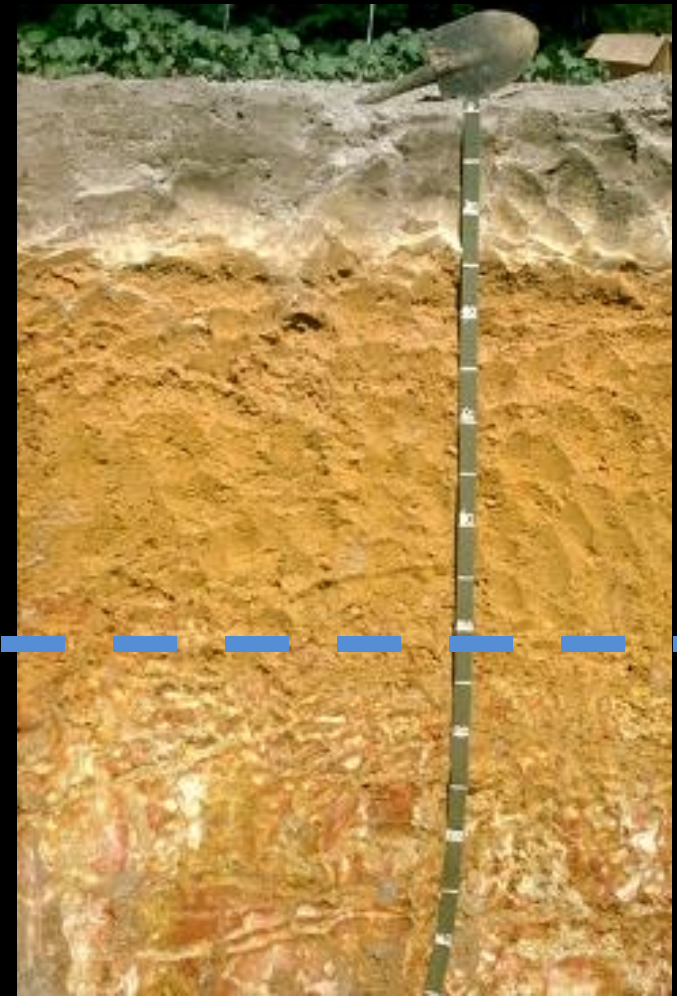
Loamy and Clayey Soils (Iron-Rich Soils)

Look for redox depletions

Depletions are “dull grey”

Concentrations typically accompany SHWT depletions, but they are ignored. Just look for depletions.

This is the consequence of ample iron.



L/C material above 40": depth to SHWT is depth to 2% chroma 2 or less depletions

L/C material below 40": depth to SHWT is depth to 2% chroma 3 or less depletions

Loamy and Clayey Soils (Iron-Rich Soils)

Note on color: above 40", redox depletions are required to be chroma 2 or less (see Munsell color book). Below 40", depletions must be chroma 3 or less to indicate SHWT. This presents a particular challenge for judges, when chroma 3 depletions occur above 40". Why? Well we appreciate that students will see these depletions and recognize them as indicating wetness. So we hate for students to lock in on the depletions and therefore get the wrong answer, because, conceptually, they were looking for the right thing. However, we can't call a water table at chroma 3 depletions until 40" depth. See the next slide for a 40" call even though the chroma 3 depletions are up to about 36"

If we called it at 36", it would be the same as spelling "cat" as "kat" because that's what it sounds like.

So, what do you need to do? Just make sure that if you are calling a water table in loamy/clayey material above 40", that the redox depletions are grey enough (chroma 2 or less).

See next slide for example:



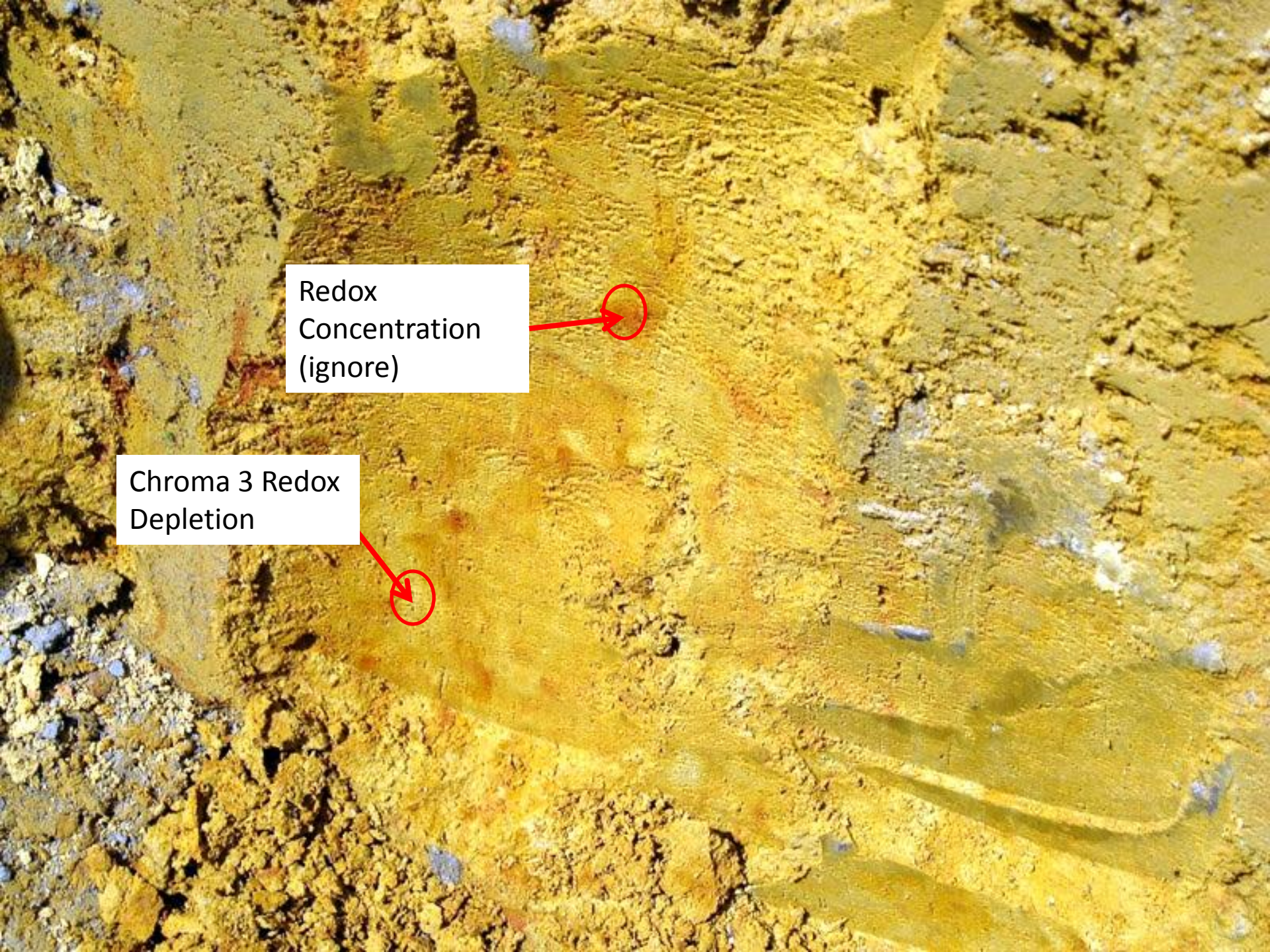
SHWT @ 40"

(chroma 3 depletions)

Redox
Concentration
(ignore)



Chroma 3 Redox
Depletion



A photograph of a soil profile showing a distinct layer of soil. A dashed blue line is drawn across the profile, labeled 'SHWT'. Below this line, the soil exhibits various shades of red and brown, indicating redox depletions. Two white vertical rods are visible on the right side of the profile, likely used for soil sampling or measurement. The top of the profile is covered with green grass.

SHWT

Chroma 2 Redox
Depletions
everywhere

Sandy Soils (Iron-Poor Soils)

Look for redox concentrations

or

Stripping (maybe)

SHWT



Note on stripping: to the untrained eye (meaning you) stripping is often missidentified. It is the only indicator of SHWT in a Spodosol in cases where the SHWT is above the Spodic horizon (which is almost always the case). You would be far safer to just estimate that the SHWT is $2/3$ of the distance between the soil surface and the top of the spodic horizon.

Stripped area: faint, diffuse, splotchy removals of organic matter




Stripped area: faint, diffuse, splotchy removals of organic matter



Redox
Concentration



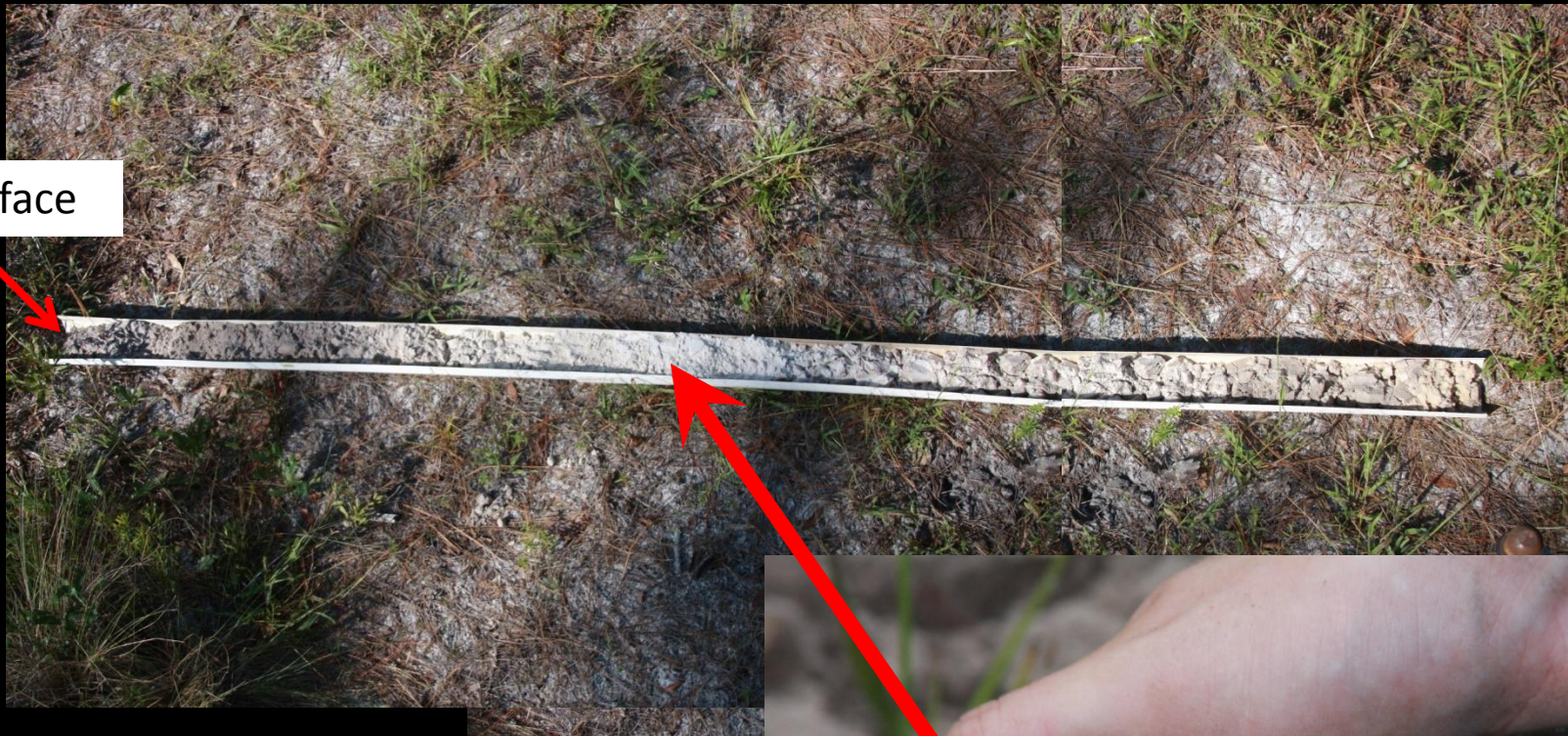


Most of the horizon is leached, but you can still see a faint-diffuse-patchy pattern

Redox
Concentration



Soil surface



SHWT



Rules

- SHWT is depth to the shallowest indicator.
- Sandy indicators: redox concentrations and stripping
- Sandy: 2% redox concentrations or 10% stripping
- If spodic horizon present, SHWT probably 2/3 way between top of spodic and soil surface. Look for stripping as evidence and significant root die-off.
- If redox conc. below the spodic and stripping above, SHWT at stripping above spodic (very much often the case).
- If redox below and no stripping above, then SHWT below spodic at the top of the redox conc. These can be tough. Usually the spodic horizon is not as dark and appears more mixed.

- Loamy indicators: redox depletions
- L/C: 2% redox depletions chroma 2 or less above 40"
- L/C: 2% redox depletions chroma 3 or less below 40"