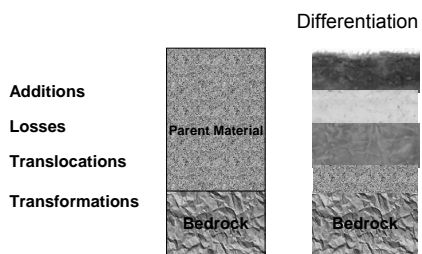


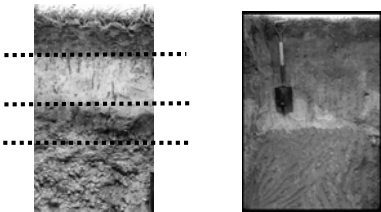
Delineating Soil Horizons

Soil as a Natural Body

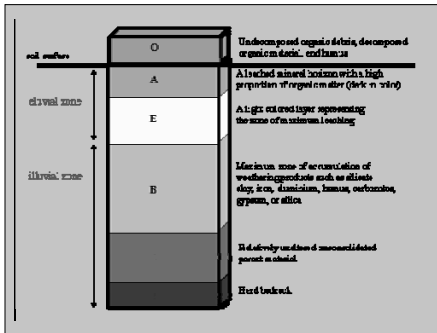


Soil Horizons

Roughly parallel layers in the soil with varying composition and properties

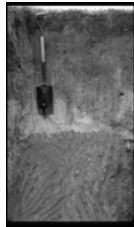


Master Horizons

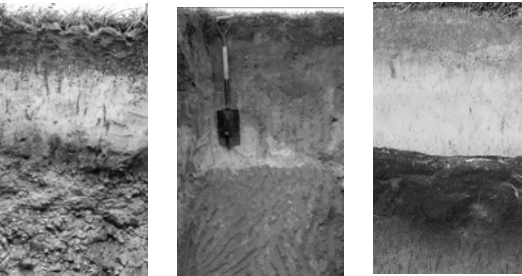


Criteria for Characterizing Soil Horizons

- Color
- Texture
- Density
- Structure
- Organic matter
- Mineralogy
- Chemistry



Soil Color



Soil Color



Determinants

- Mineralogy of the soil/parent material
- Relative amount of organic matter
- Hydrology of the soil
- Soil chemistry
- Soil Microbes

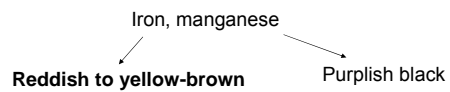
Coloring Agents in Soils

Organic Matter

Grey to Black coloration particularly in topsoil or A horizon material.

Can be found in the sub-soil as an accumulation

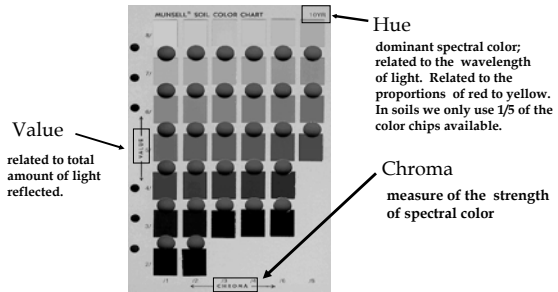
Elements and Compounds



Soil Color Determination



Munsell Soil Color

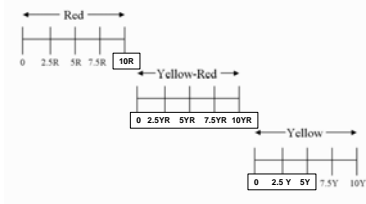


Value
related to total amount of light reflected.

Hue
dominant spectral color; related to the wavelength of light. Related to the proportions of red to yellow. In soils we only use 1/5 of the color chips available.

Chroma
measure of the strength of spectral color

Hue - Dominant spectral wavelength



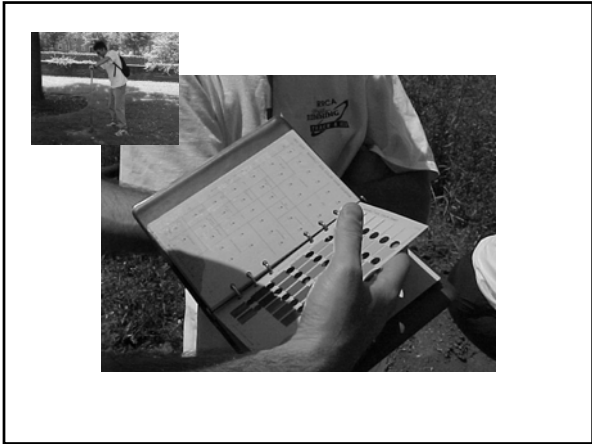
Hue

Pages

10 R 2.5 YR 5 YR 7.5 YR 10 YR 2.5 Y 5 Y


Red \longrightarrow Yellow
Increasingly dominated by yellow spectral color

Florida soils dominated by 7.5 YR and 10 YR pages

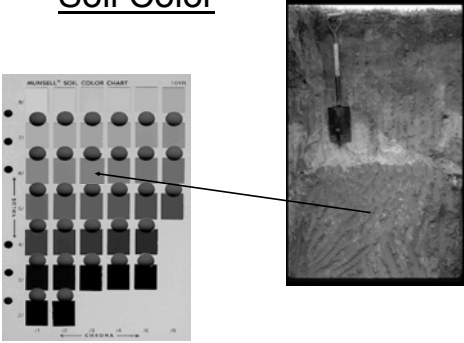


Reading Soil Colors

- Optimum conditions
 - Natural light
 - Clear, sunny day
 - Midday
 - Light at right angles
 - Soil moist
 - NO sunglasses!



Soil Color



The image shows a Munsell soil color chart on the left, which is a grid of color patches. On the right, there is a photograph of a soil profile with a color chart being held against it for comparison. An arrow points from the chart to the soil.

MUNSELL® SOIL COLOR CHART 10YR

Hue = 10 YR
Value = 6
Chroma = 3

Munsell Color
10 YR 6/3

10 YR 2/1

MUNSELL® SOIL COLOR CHART 10YR

10 YR 5/6

MUNSELL® SOIL COLOR CHART

MUNSELL® SOIL COLOR CHART 10YR

Pink

Pale Red light Red

Weak Red Red

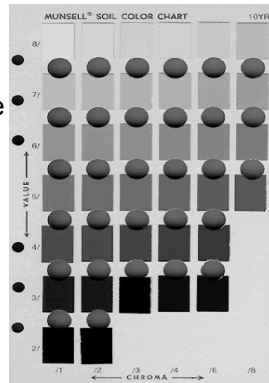
Dark Red

Summary

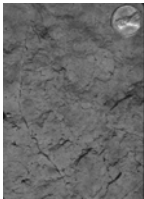
A horizon – mid/low value
- low chroma

E horizon – high value
- low chroma

B horizon – ? value
- ? chroma



Water table depth
Oxygen status
Development decisions



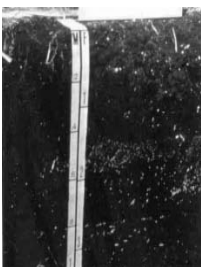
Hydric Soil Classification

Hue 10YR or Yellower

Value ≤ 3

Chroma ≤ 1

“Black Histic”



Criteria for Characterizing Horizons

- Color
- Texture
- Density
- Structure
- Organic matter
- Mineralogy
- Chemistry



See the Teaching Assistants Before Leaving:

Jon Demps
Melissa Odal
Grant Baysinger
Daniel Kristiansen
Markihe Anderson
Percy Harvin

Also anyone who has not received a student number

Describing Soil Color Patterns

- Matrix color - dominant color of horizon.
- Redox colors.
- Redox contrast, abundance, size, shape, location, boundary, etc.
- Other colors (mottles)

