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Soil Quality and Productivity

“The soil is the great connector of our lives, the source and destination of all.” --- **Wendell Berry, The Unsettling of America, 1977**



Soils

What's the big deal?
It's just dirt, right?

Soil or Dirt?

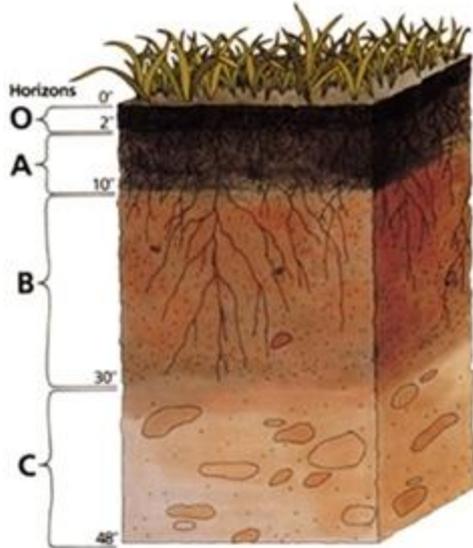


Soil? It is a complex mix of ingredients: minerals, air, water, and organic matter—countless organisms and the decaying remains of once-living things. Soil is made of life. Soil makes life. And soil is life.

Dirt? Dirt is what gets on our clothes, on the kitchen floor, or under our fingernails. Something to wash off, to get rid of.

Soil

- A natural body consisting of layers (soil horizons) derived from mineral and organic components on the surface of the earth.



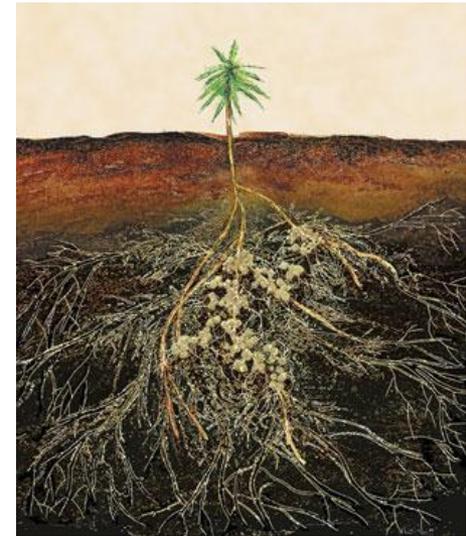
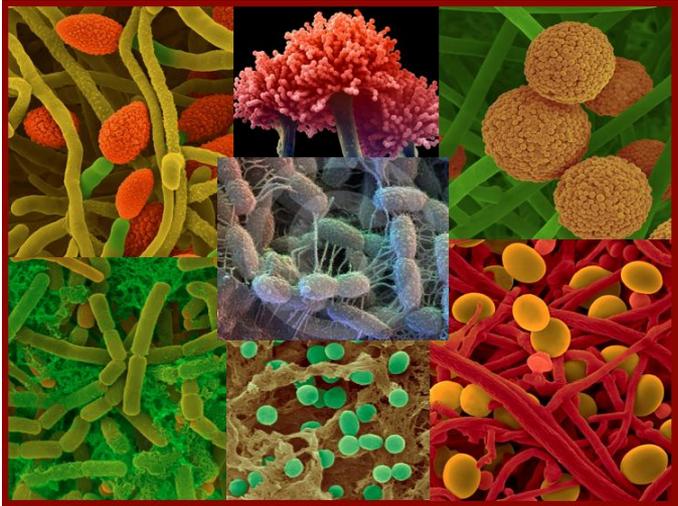
Soil Quality & Productivity

- Soil quality is the ability of the soil to maintain ecological function.
- Soil Productivity =

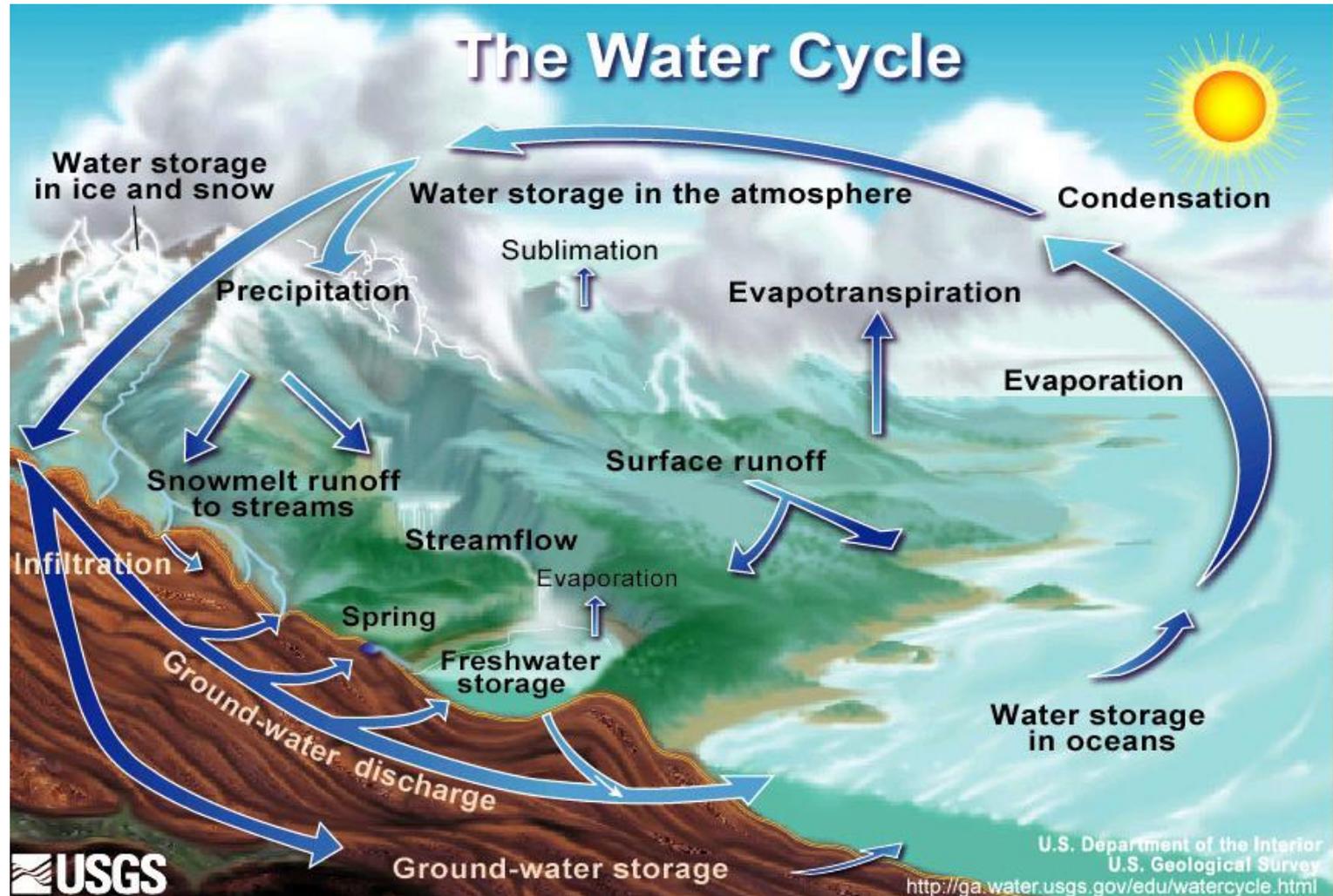
Σ (biology, hydrology, nutrient cycling, stability and support, filtering and buffering, carbon sequestration)



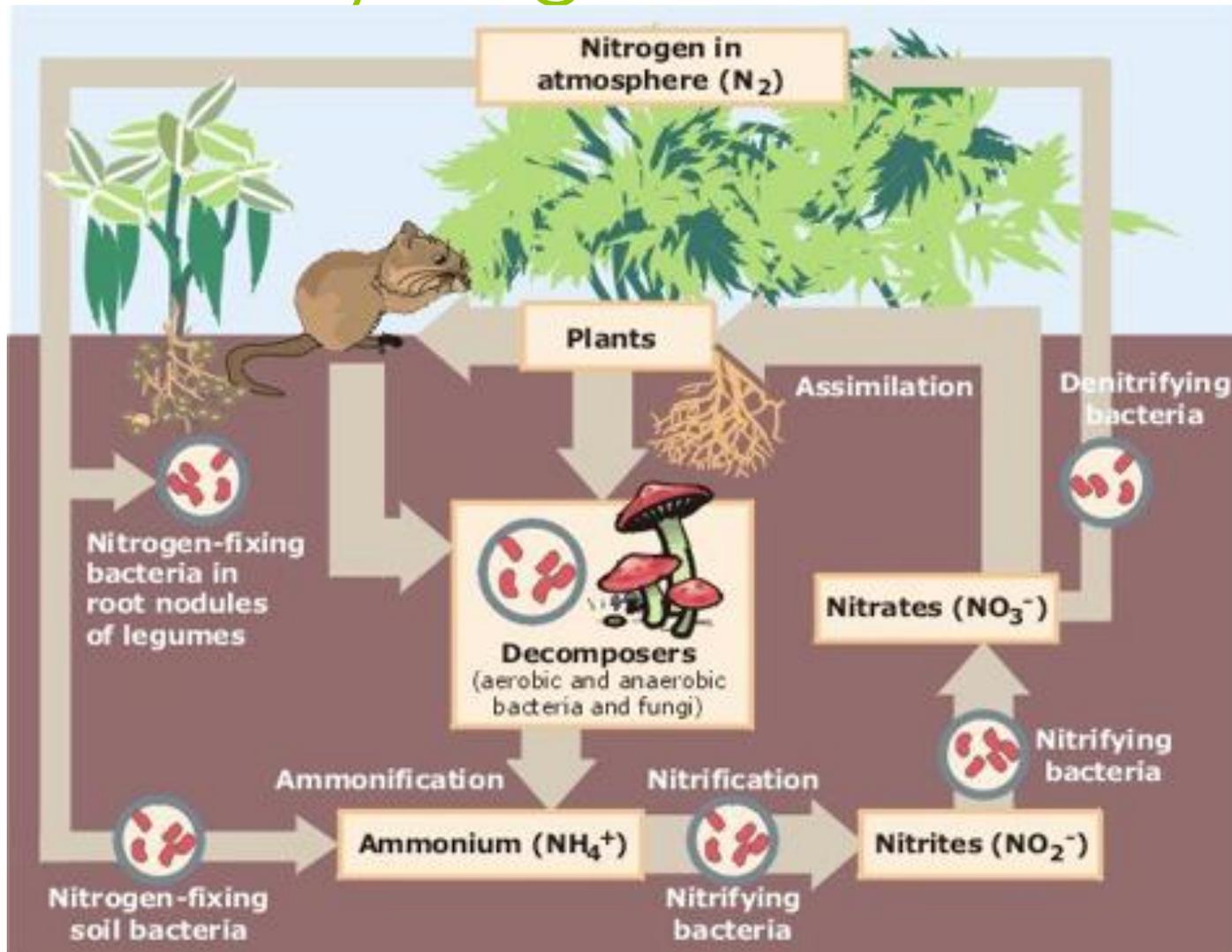
Soil Biology



Hydrology



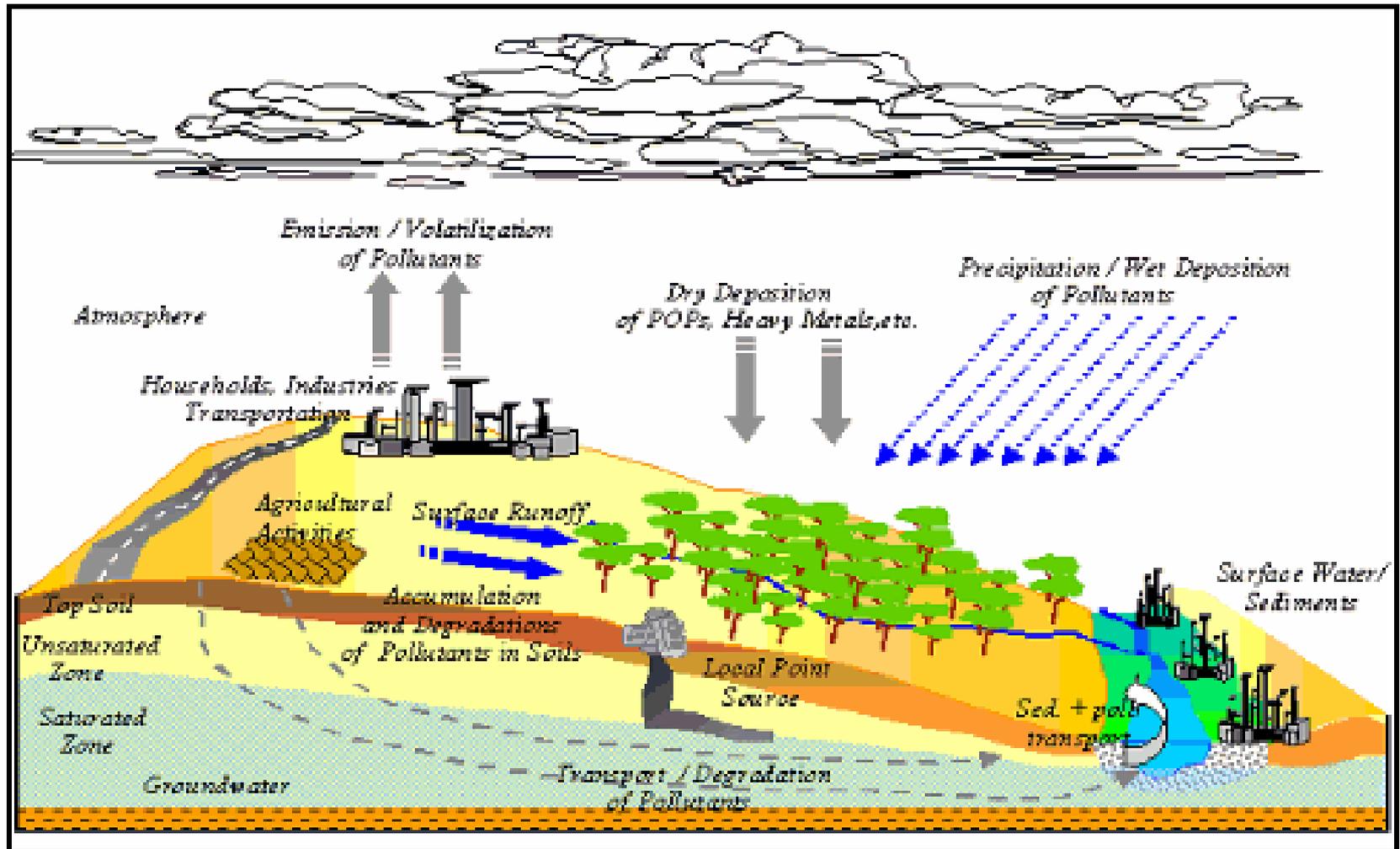
Nutrient Cycling



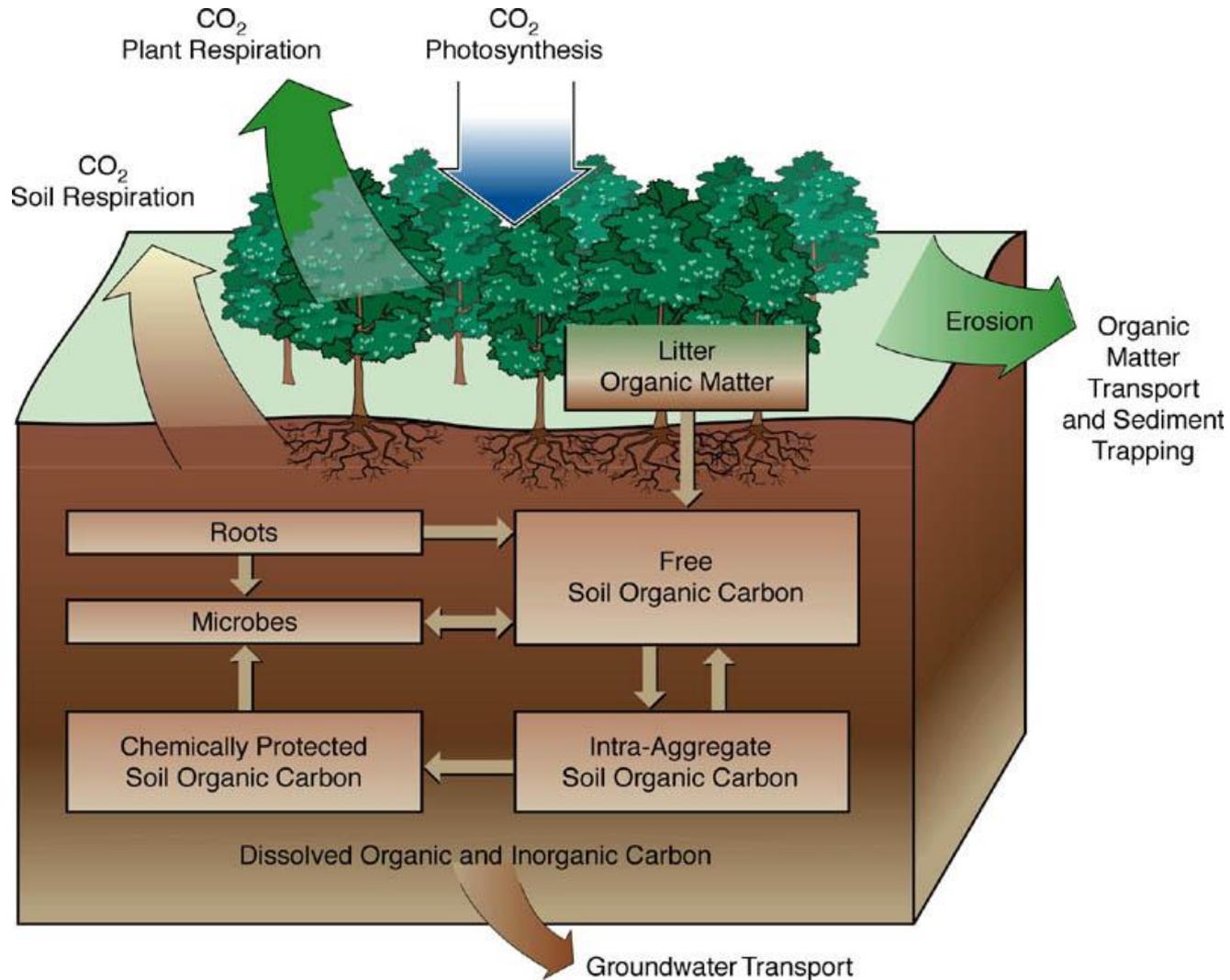
Stability and Support



Filtering and Buffering



Carbon Sequestration



Soil Quality Indicators

- Soil quality indicators are used to assess soil functions.
- Most soil quality indicators are observations and measurements taken at the soil surface and in the upper mineral soil.
- For example – Surface Crusting and Available Water are Indicators of Soil Hydrologic Function

Forest Plan Components

DFC:

- Soil quality and productivity is not impaired.
- Change of focus to soil function instead of soil disturbance.
- Emphasis on soil quality indicators that can be used to assess soil functions.

Forest Plan Components

Standards:

- Standards similar to current Regional 1 Soil Quality Standard
- Maintain soil function and/or improve

Forest Plan Components

Guidelines:

- Organic Matter and Nutrient Cycling
- Temporary Road Restoration
- Erosion and Slope

Suitability:

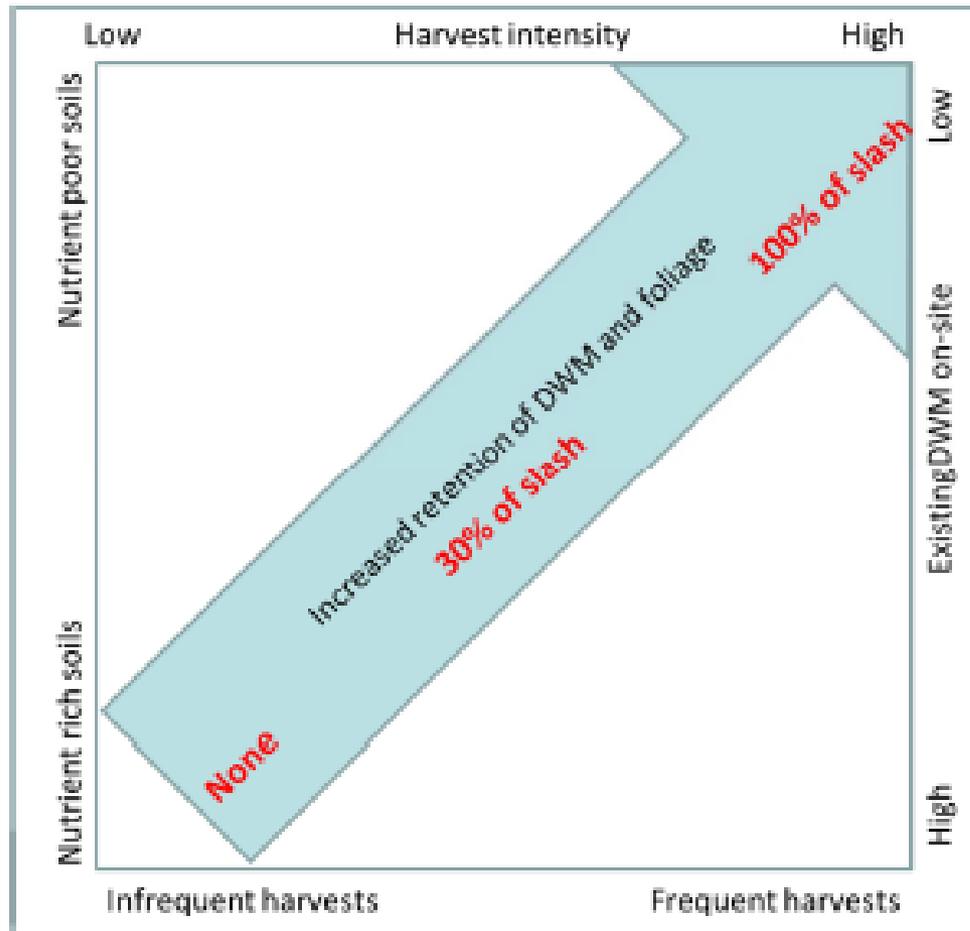
- Not Applicable

Update from 3/5/2013

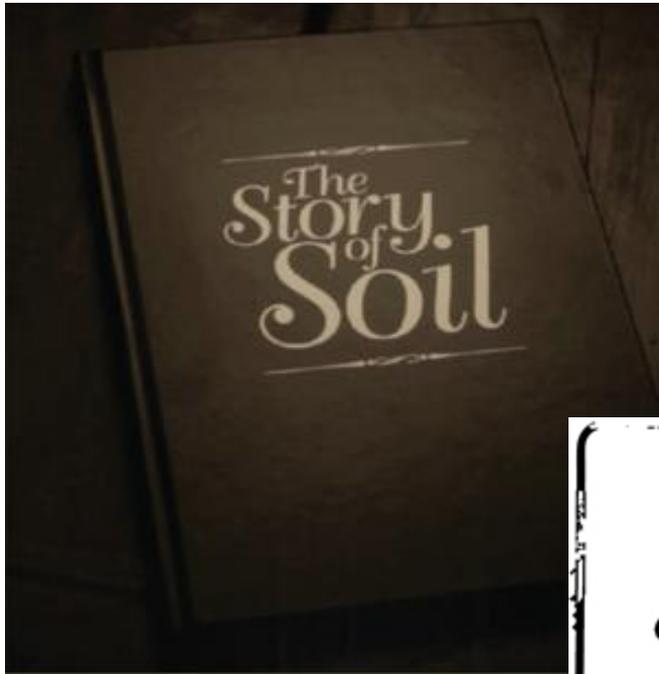
Meeting w/ RMRS

- DFC for Forest and Rangeland Floor
 - Part 1 as written – no additional breakout based on habitat type
- No additional guidelines for fine woody material or forest floor depth.
 - May have implementation guidance for planning similar to figure on the next slide
 - Project specific design measures will be included when needed to meet DFC

Figure from Forest Guild Pacific Northwest Biomass Working Group



Questions and Discussion



WANT TO SEE THE STORY OF SOIL?

<http://www.iheartsoil.org/>

DIG IT!

The Secrets of Soil



<http://forces.si.edu/soils/>