Soils Investigation
Nevada Youth Range Camp

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This curriculum is used at Nevada Youth Range Camp for teaching high school age campers about soils. The learners investigate differences from coppice dunes to interspaces and then examine a soil profile to learn about horizons and how they can be described. Discussions emphasize relationships to range plants and features of the topography. The pages in this font are for the instructor only. The pages in this font including all figures are for the campers.
Setting the Stage
Set the stage for this investigation by quickly reviewing what will take place. For example: "In this investigation we will identify how soils differ from place to place, characteristics of soil that affect which plants grow where, and how soils and vegetation should be managed.

Rationale: Soil is essential for most range plants to grow and thrive. Soil captures and stores the moisture from precipitation, holding it for plant growth days or months later. Soils also store nutrients needed for plant growth. Learning how soils differ across a land surface and how the characteristics of soils, including layers of soil beneath the surface helps a range manager know what to expect and how to manage. Learning about soils can help people grow better lawns and gardens and put different land uses in the best places.

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Application
The things you learn about soils will help you appreciate their variable nature. Furthermore, you will be able to make and interpret your own observations in other areas where soils and plants differ.

How You'll be Involved
Working in small groups; Collecting data on the characteristics of soils at the surface and within a soil profile; Group discussions of data and interpretations; Individual summary of findings.
**Equipment Needed:**
Task cards, one of each for each learner
Measuring tape
Stakes or pins to hold the tape in place and mark different horizons
Plant key to identify the plants on site
Munsel color book
Soil pH kit.
HCl
Ring infiltrometer
Water bottles filled with water

**Opening Oneself to the Soil and Landscape Setting**

Hand out TASK A

Task A This Location on Planet Earth

Ask learners to stop and observe this location on Planet Earth. Take a short walk around the site and record your observations about this area. Pick terms that best describe what you see.
**Task A - This Location on Planet Earth**

By yourself - Stop and observe this location on Planet Earth.

Take a short walk around the site and record your observations about this area. Use terms that best describe what you see:

What is the slope of this landform?

What is the aspect of this land surface?

How would you describe the environment here?

- Exposure to weather

- Plant life

- Animal life

- Soil Surface

- Rocks

- Nearby landforms
Figure 10. A schematic diagram of *fan aprons* (A) on a *fan piedmont* (P). Note that the *relic fan piedmont surface* occurs both above and below the *fan aprons*, separating them from both the *mountain front* and the *basin floor* (BF). *Fan apron A1* is younger than the *relic fan-piedmont surface* because it overlies it, but is older than *fan apron A2* because it is buried by A2. *Fan apron A3* was formed by lateral coalescence of several small fans from onfan drainageways, whereas *fan aprons A1 and A2* are individual mantles debouching from fanhead trenches and would be considered of significantly different ages if a pedogenic soil of A1-age is buried by fan apron A2. *Fan apron A3* is younger than the *relic fan-piedmont surface*, but may be either younger, older, or the same age as the other two fan aprons. Also, note that the *fan-piedmont remnant at position f-1* is an "erosional" remnant (i.e., is scarped), whereas at position f-2 the same relic surface is a "nonturbated" remnant; these distinctions are merely heuristic.

A1, A2, and A3 are Alluvial Fan Aprons on a Fan Piedmont (P) below a mountain front and above the Basin Floor (BF).

Questions for discussion

What did you observe? (Encourage everyone to contribute to this discussion)

What did you observe about nearby landforms?

Locating Ourselves on the Land

Dr. Fred Peterson studied soils and how they form in Nevada for many years. The Peterson landform guide shows landforms common across the Great Basin, this vast region of North America where surface water does not flow to the ocean. Have the campers turn over Task A to answer the following questions:

Where are we on this landform sketch?

What physiographic division?

What kind of landform?

Relatively how old is the landform?

What is the parent material?

How could you tell where we are?

What does this location tell us about the soil here?

To provide a better answer to that question it will be helpful to learn what soil is and what factors come together to form it?

Hand out the Broad Overview of Soils and talk through some of the concepts as illustrated by what has been seen so far and what the landscape has to offer in the way of examples.
Broad Overview of Soils

Soil is a mixture of mineral particles, air, water and organic matter of various size and composition. The mineral particles often make up about 50 percent of the soil's volume, and the other half of the soil is actually pore space filled with air or water. Pores are the amount of open space between particles. Organic matter is the accumulation of partially decomposed plants and animals. Humus is the stage of organic matter decomposition between fresh organic residues and simple carbon compounds. Organic matter is present in all soils but in most Nevada soils, especially non-wetland soils, it is the smallest component. A fertile soil is produced by centuries of physical and chemical weathering of rock with plants and animals adding organic matter.

Soils can be different within short distances both horizontally and vertically. Anyone who works intimately with soils soon realizes that soils are anything but uniform. It is important to visualize soils in three dimensions, not unlike the peel of an orange. The horizontal areas reflect soil boundaries and the vertical layers are soil horizons. These differences are caused by the following five soil forming factors: parent material, climate, topographic relief, biological forces and time.

Parent Material
Different rocks weather or break apart at different rates depending on hardness and chemical composition. Some rocks weather to remain as minerals that have persisted with little change in composition since they were extruded in molten rock (e.g., quartz, micas and feldspars). These are known as primary minerals. Minerals such as clays and iron oxides, that were formed by the breakdown and weathering of less resistant minerals are known as secondary minerals. The primary minerals weather into sand and smaller silt size particles. Secondary minerals can weather into much smaller clay particles. Mineral soil has three grain sizes: sand, silt and clay.

Grain sizes of mineral soils
Sand is the largest soil particle size - up to 2mm in diameter. Sandy soils tend to have greater susceptibility to wind erosion and less water available for plants (droughty). Feel the sand dry and see the individual grains. Wet up sample and feel the single grains. Try to roll the wet sample into a ball; notice that it falls apart. (nonsticky and nonplastic).

Silt soils tend to have low adhesive properties and are easily moved by water flowing through them. This movement is called piping. Surface water movement can create rills and gullies through the process of erosion. Feel a dry sample of silt; notice it feels like flour or dry concrete mix. Wet the sample and roll it into a ball and then a cylinder. Feel how sticky the sample is between your fingers (moderately sticky and slightly plastic).

Clay particles are the smallest. The clay fraction is the one that controls most of the important properties of a soil. Soils high in clay absorb water very slowly and release water to plants slowly. Many types of clay shrink when they dry or swell when wetted. Wet up the clay sample, notice how much more water it takes and how much longer it takes to work it up. Roll into ball, roll into a cylinder, and see how sticky it is between fingers (very sticky and very plastic).
The proportions of sand, silt and clay determine the soil texture. For example a loam is a mixture of sand, silt and clay where each grain size has roughly equal expression. Because most plants need air, water and nutrients for optimum growth, the best soil for plant growth is a loam. Usually loams have the more desirable properties of sand and clay without having the undesirable properties such as low water holding capacity like sandy soils or slow movement of air and water like clayey soils. Organic matter increases the fertility of a soil by making water, air and nutrients more available for productive plant growth.

**Climate**

The major climatic forces that influence soil formation are precipitation and temperature, which are influenced by the effects of topography and relief. Climate is perhaps the most influential of the four factors acting on parent material because it determines the nature of weathering that occurs. Temperature and precipitation affect the rates of chemical, physical and biological processes responsible for soil development. Both the average air temperature and the soil temperature are higher in the valley than the mountains. Furthermore, biochemical changes by soil organisms are sensitive to temperature as well as moisture. Within the range of biological activity, a 10 degree rise in temperature may double the rates of biochemical reactions. Usually precipitation increases with elevation. The valley bottom probably has less than 8 inches of precipitation, but in some situations may have a water table close to the soil surface. At the investigation site the precipitation is about 9 inches, and the water table is probably about a hundred feet down. The area where the trees are starting to fill the landscape probably has about 14 inches of precipitation. The tops of the mountains are getting about 16 to 20 inches of precipitation mostly in the form of snow. Water from rain and snowfall is a primary requirement for weathering parent material to produce soil. More precipitation accelerates weathering because water dissolves or changes soil and rock particles by chemical weathering. Freezing water expands spreading cracks apart to break rocks by physical weathering. More water also produces more vegetation, which in turn adds more organic matter to soil. Soil organic matter stores water and feeds soil organisms such as bacteria, insects and burrowing mammals that recycle nutrients.

**Relief**

Relief or topography is the shape of the land surface and is described in terms of differences in elevation and slope - in other words the lay of the land. Relief can hasten or delay the work of climatic forces within the landscape resulting in localized changes in moisture and temperature. Soils on north slopes tend to be wetter and cooler than soils on south slopes. The orientation of a landform slope or the direction a soil surface faces is aspect and it’s determined with a compass as the direction water flows downhill. The steepness or slope is measured with an abney level or clinometer. A 8-foot rise in a 100 foot of horizontal distance is an 8 percent slope.

Most of Nevada has a basin and range topography, which is caused by the earth’s tectonic plates pulling apart creating block faults. These block faults have created long narrow mountains, slowly rising over millions of years while valleys running north and south have been sinking as sediment erodes off the mountains and washes into the valleys. Piedmont slopes lie between the front of the uplifted mountains and the nearly level valleys or basin floors. Piedmont slopes are covered by the material eroded from the mountains and are often shaped into alluvial fans.
Biological Forces
Plants, animals, insects and micro flora are important biological forces that affect soil formation in this area. Organic matter accumulation, profile mixing, nutrient cycling, and structural stability are all enhanced by the activities of organisms in the soil. Although mammals and insects have had some effect on soil development, plants have a greater influence in altering soil properties. Organic matter can lower pH, making it more acidic which can increase weathering of parent material. Vegetation, such as grass, forbs, moss and lichen, is very important in stabilizing the land surfaces so that soil formation can occur. Microscopic organisms and the organic chemicals they produce hold soil particles together in aggregates or soil structure- you may have called them dirt clods. Well aggregated soil provides the right combination of air and water to plant roots. Plants, animals, and microorganisms take up and store plant nutrients. Some even fix nitrogen to make it available for other plants to use. Soil organic matter, which comes largely from plant roots, adds greatly to soil water holding capacity.

Although plants alter soil properties, they are influenced by the larger physical and chemical properties of the original parent material. Certain plant species prefer to grow in soil with specific chemical and physical properties. Understanding the relationship between plants and soil can help predict soil properties under plant communities without looking at the soil profile.

Time
The longer a soil surface has remained stable from geomorphic processes and exposed to all the other soil forming agents like rain and plant growth, the greater the development of the soil horizons. The age of a soil can vary from a few hours (for example a recent flood deposit) to millions of years. The soil we are standing on is probably 40,000 to 60,000 years old. The Peterson landform guide shows that erosion may cut into or younger deposits may cover older soils.
Coppice Dunes

Did you notice anything different about the soil under the shrubs?

Within the big scale of landforms, soil differs from place to place. On a small scale, soil differs from the area under shrubs to the interspaces between shrubs. These differences can affect rangeland seedings and microhabitats for plants and animals.

Hand out TASK B and help learners if needed see the difference between the coppice dunes and interspaces.

Do this task in groups of 2-3. Take (10-15 minutes).
Task B Coppice Dunes

On many shrub ranges, there are mounds of accumulated windblown soil under shrubs. These are called coppice dunes. Interspaces are between these coppice dunes.

Put a mark (X) in the column that has more of these things:

<table>
<thead>
<tr>
<th>Observation:</th>
<th>Coppice Dune</th>
<th>Interspace</th>
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<tbody>
<tr>
<td>Live vegetation (grass, forb)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cryptogams (mosses, lichens)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organic matter (litter, duff, dead plants)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Darker color (more soil carbon)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rock fragments (gravel, cobbles, stones)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less crusty (less of a hard surface layer)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less platy structure (flat shaped aggregates)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effective pores (tubular or interstitial – not vesicular)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sand (wet the sample and feel)</td>
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The soil surface (the top millimeter or so) is the location for two critical processes in the life and sometimes death of soil. These processes are erosion and infiltration of water. Usually places with good conditions for infiltration have less erosion hazard.

Predict which has better conditions for infiltration and probably has less erosion hazard, the coppice dune or interspace? ________________________________.

Now test this prediction, using a ring infiltrometer, timing the infiltration of water using the same quantity in each setting – Time to infiltrate Coppice dune ____ interspace ____.
If the water does not all soak in, record the amount the water has dropped in inches.

Which soil conditions seem to promote infiltration? ________________________________

When rain or snowmelt is too fast for the conditions of the soil, water that does not infiltrate into the soil runs off. Water may carry soil particles along in the process of erosion and deposit sediment in flatter spots or behind debris dams.

Circle the following indicators of erosion or deposition that can you see in this area.

Pedestalled plants \ rills \ Gullies \ Sediment behind debris dams \ Sediment where the slope becomes flatter

If you see sediment, where did erosion take it from, Coppice Dune or Interspace?

Where is it being deposited? Coppice Dune, or Interspace ________________________________
Discuss task B

If some of the pairs of learners have different answers, ask how could we find out for sure?

What do coppice dunes and interspaces work differently to influence which areas are wetter and which are drier?

Soil Horizons

So far we have just scratched the surface of soil. While most biological activity happens at or near the soil surface, the soil below ground dramatically influences above ground processes.

Either dig a soil pit through the surface horizons that is big enough for many learners to get inside the pit and observe the soil horizons or go to a pre-dug soil pit. Ask the learners to carefully observe what they see in the side of the pit, looking especially for layers in the soil and differences between the areas under the shrub and in the interspace.

One of the best ways to observe closely is to draw what you see. It forces you to look closely and to think about what is important about what you see. Drawings are even more useful when they are matched with careful observations

Hand out TASK C for learners to make drawings and record observations.
Task C Soil Profile Observations

Examine the soil profile to look for different layers.

Draw a sketch of the soil profile (a side view of the soil about 2 feet wide) and record the thickness and major characteristics or differences of each layer. Work by yourself or with a partner.

Sketch: 

Characteristics of each layer:
Discuss task C

After all have made observations, discuss the following questions:

What differences did you notice between the soil layers or horizons?

What could have caused those differences?

Would you expect the same soil layers everywhere across the land?

Soil Profile Description

Teach the skills needed for soil observation by using the outline on TASK D and the task card describing soil texturing. It will help to focus on different soil horizons that are clearly different in textures for learners to practice texturing by making ribbons etc. The goal is not to complete a soil profile description, but to not important differences among the major contrasting layers

Hand out TASK D. As the skills are taught, have the learners go to the soil pit and use their new skills to describe important or contrasting characteristics. Help individuals as they need it. Discuss what you find as the opportunity arises. Modify the task of soil profile description to fit the time and interest of the learners.
Task D - Soil Profile Description

Describing soil layers As you are learning these definitions and directions, use the skills to describe the top layer of the soil profile:

Soil Depths Measure in inches from the soil surface to the bottom of the soil pit, taking note of individual horizon (layer) depths.

Soil Color can be accurately recorded using Munsell Soil Color Charts. **Hue** is amount of red, yellow, green, blue or purple that reaches the eye. Hold a soil sample by each page and determine which page the sample fits best (most soils in Nevada have a hue of 10YR). **Value** indicates the degree of lightness or darkness of a color. The higher on the page the lighter the color and the higher the value. **Chroma** is the relative purity or strength of the color. Neutral colors have low numbers and stronger colors have higher numbers. Value and chroma are determined by comparing a soil with the color chips and reading the numbers of the chip that the sample fits best. The **color name** can be determined from the left page. Dry colors are air dry and moist colors are moistened until they don't get any darker. Darker colors generally indicates more organic mater (humus).

Soil Texture is the relative proportions of sand, silt and clay in a soil. (See feel method flow chart)

Soil Structure the shapes that soil particles are held together in small clumps or clods.
- Platy: flat and plate-like usually oriented horizontally. (Reduce water movement into soil)
- Blocky: block-like, with relatively distinct edges and corners.
- Prismatic: blocks are much taller than they are wide.
- Granular: rounded aggregates less than 1/2 inch in diameter.
- Lack of soil structure
- Single grain: soil particles not held together, loose - like sand on a beach.
- Massive: does not break in any predictable or repeated way, irregular.

Reaction pH is a numerical representation of reaction; the higher the number the more alkaline the soil (basic, often more calcium carbonate) and likewise; the lower the number the more acid the soil. A pH of 7.0 is considered neutral. Soil pH is an indication of how well certain plants can grow in the soil. The soils on the mountains usually have a pH between 6.0-7.0, while the soils in the valley bottom can have a pH of up to 9.0.
Place a small sample of soil in a clean porcelain dish, add pH reagent to fill the indentation. Match the color at the edge of the soil sample with pH color chart.

Roots described by amount: many, some or few and by size: fine, medium or coarse.

Soil Pores area filled by air and/or water.
- Interstitial pores - irregular voids between soil structure or soil particles.
- Tubular Pores - rounded and elongated voids (worm or root holes).
- Vesicular - spherical or elliptical non-connected voids (gas bubbles).
Carbonates  Add a few drops of diluted hydrochloric acid to soil to estimate the amount of carbonate in the soil:
Noneffervescent - no bubbles  
Very slightly effervescent - few bubbles  
Slightly effervescent - bubbles readily  
Strongly effervescent - bubbles form low foam  
Violently effervescent - bubbles form large foam

Soil Moisture  Place a soil sample from each layer in a plastic bag, seal bags and place them in sunlight. After completing rest of the soil description, record the term that best describes the soil moisture: saturated, moist, damp or dry.
Task D. – Describing Soil Layers Describe the soil profile by focusing on key differences, layer by layer: (Especially for the top 2-3 layers).

First Layer - A Horizon (top soil) – Depth___________ to_____________ inches.

Dry Color: Hue________________ Value______ Chroma_______

Color Name: ________________________________.

Moist Color: Hue________________ Value______ Chroma_______

Color Name: ________________________________.

Texture: _____________________________________

Structure: ____________________________________

pH:________. Carbonates: ______________________ effervescent.

Roots: __________________________________________

Pores: __________________________________________

Soil Moisture: ___________________________________

Second Layer – Depth___________ to___________ inches.

Dry Color: Hue________________ Value______ Chroma_______

Color Name: ________________________________.

Moist Color: Hue________________ Value______ Chroma_______

Color Name: ________________________________.

Texture: _____________________________________

Structure: ____________________________________

pH:_______. Carbonates: ______________________ effervescent.

Roots: __________________________________________

Pores: __________________________________________

Soil Moisture: ___________________________________
Third layer – Depth__________ to___________ inches.

Dry Color: Hue_________________ Value_______ Chroma________

Color Name: _________________________________.

Moist Color: Hue_________________ Value_______ Chroma________

Color Name: _________________________________.

Texture: _________________________________

Structure: _________________________________

pH:_________. Carbonates: ______________________ effervescent.

Roots: _________________________________

Pores: _________________________________

Soil Moisture: _________________________________

Fourth layer- Depth__________ to___________ inches.

Dry Color: Hue_________________ Value_______ Chroma________

Color Name: _________________________________.

Moist Color: Hue_________________ Value_______ Chroma________

Color Name: _________________________________.

Texture: _________________________________

Structure: _________________________________

pH:_________. Carbonates: ______________________ effervescent.

Roots: _________________________________

Pores: _________________________________

Soil Moisture: _________________________________
Soil Survey

What we have observed in the soil pit is one soil pedon. The landscape is made up of thousands of these. While each is different in some ways, pedons in an area of the same landform tend to be similar in depth and structure (remember the Peterson landform diagram). These can be mapped as a soil map unit. They can also be classified so that the map unit corresponds to a name that has meaning for others who know the language. This information is stored for use by others in a soil survey.

Hand out Task E.

Provide help as needed and address the questions on Task E either as you go or after everyone has finished, depending on the amount of help needed.
Task E Soil Survey

Because soil is the basic resource upon which all others depend, range conservationists work closely with soil scientists. Together they have mapped this area and recorded their interpretations in a soil survey. Soil mapping is done by thinking about the soil forming factors and using photo interpretation to predict soil characteristics. Verification of this prediction is done by digging a soil pit (like we just looked at and described or a smaller hand dug pit). Soil descriptions are classified using Soil Taxonomy (a scientific system for classification of soils) and grouped with similar soils into map units. The map unit is used to describe unique soil interpretations (how the soil can be used/managed).

The Natural Resources Conservation Service has published soil survey reports for most of Nevada and other states. Anyone can go online to Web Soil Survey at http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm and pull soil reports and soil maps for free. Farmers, ranchers, foresters and agronomists can use it to evaluate the suitability of the soil and the management needed for optimum food and fiber production. Planners, community officials, engineers, developers, builders and home buyers can use the survey to plan land use, select sites for construction and identify special practices needed to ensure proper performance. Conservationists, teachers, students and specialists in recreation, wildlife management, waste disposal and pollution control can use the survey to help them understand, protect, and enhance the environment. The soil information for this pit is taken from the adjacent survey of Lander County, Nevada, South Part.

1. A copy of one of the soil maps from this survey is included in your packet. Locate our pit on the map. What is the map unit number most likely to fit the location of the pit on the map? _____________

2. A copy of this map unit is included in your packet. What is the name of the soil map unit? _________________________________________________________ association.

3. List available information from the Map Unit Setting:

   a.) Elevation: __________ to __________ feet.

   b.) Mean annual precipitation: ______ to ________ inches.

   c.) Mean annual air temperature: _______ to _______ degrees F.

   d.) Frost-free period: __________ to ___________ days.

OVER
4. List some of the information available from the map unit description if the soil is known - for this exercise we will assume it is the Glyphs soil:

a.) Landform ______________________________

b.) Slope _____ to _______ percent.

c.) Drainage class ___________________ drained.

d.) Frequency of flooding _____________

e.) Ecological site____________________________________________

f.) Present vegetation ____________________________________________

5. Compare the data you recorded in Task A such as slope and vegetation to the information you recorded from the soil survey report (question #4). What is about the same?

6. What is significantly different?

7. As group observe the large inset from the top of the remnant about 200 feet north of the road - predict at least five major differences between the soil in the inset and the soil we described. (If there are three wrong answers before five right answers are given then a soil pit in the inset needs to be dug to observe differences.)

8. How would you summarize what you have learned about soils today?
Lander County, Nevada, South Part

2012—Glyphs-Muni-Orovada association

Map Unit Setting
- Elevation: 6,300 to 7,000 feet
- Mean annual precipitation: 8 to 11 inches
- Mean annual air temperature: 44 to 49 degrees F
- Frost-free period: 90 to 120 days

Map Unit Composition
- Glyphs and similar soils: 40 percent
- Muni and similar soils: 30 percent
- Orovada and similar soils: 15 percent

Description of Glyphs

Setting
- Landform: Fan remnants
- Down-slope shape: Linear
- Across-slope shape: Convex
- Parent material: Volcanic ash and/or alluvium derived from volcanic rock and/or loess

Properties and qualities
- Slope: 2 to 8 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Well drained
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum content: 5 percent
- Present vegetation: Wyoming big sagebrush, bluegrass, bottlebrush squirreltail, Thurber’s needlegrass

Interpretive groups
- Ecological site: LOAMY 8-10 P.Z. (R028BY010NV)

Typical profile
- 0 to 7 inches: Fine sandy loam
- 7 to 17 inches: Gravelly sandy clay loam
- 17 to 37 inches: Gravelly sandy loam
- 37 to 60 inches: Very gravelly coarse sand
Description of Orovada

Setting
- Landform: Inset fans
- Down-slope shape: Linear
- Across-slope shape: Linear
- Parent material: Volcanic ash and/or loess over alluvium derived from mixed rock

Properties and qualities
- Slope: 0 to 2 percent
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Available water capacity: Moderate (about 6.3 inches)
- Present vegetation: Wyoming big sagebrush, bluegrass, Indian ricegrass

Interpretive groups
- Land capability classification (irrigated): 3c
- Land capability (nonirrigated): 6c
- Ecological site: LOAMY 8-10 P.Z. (R028BY010NV)

Typical profile
- 0 to 5 inches: Fine sandy loam
- 5 to 15 inches: Fine sandy loam
- 15 to 40 inches: Fine sandy loam
- 40 to 60 inches: Stratified gravelly sandy loam to very gravelly sand
Soils on Other Landforms

Refer back to the Peterson guide to landforms. What other landforms could you walk to and see a different soil profile than what we have seen here?

How would it be different?

Go there and see.

What was different about this soil profile?

What was the same?

Summary

Provide everyone a chance to summarize what they have learned about soils today. Ask:

How would you summarize what you have learned about soil today?