

# Soil Quality Information Sheets for Rangeland

**Soil Quality Information Sheets** for rangeland describe soil properties that change in response to management and vegetation change. The sheets provide information that is related to a number of the indicators used in rangeland health assessments. They support rangeland inventories and monitoring and provide possible management strategies for planning purposes.

This set of 10 sheets is an example of the practical materials developed collaboratively by the Soil Quality Institute, the Grazing Lands Technology Institute, the National Soil Survey Center of the USDA Natural Resources Conservation Service, the USDA Agricultural Research Service Jornada Experimental Range, and the USDI Bureau of Land Management. The information is primarily intended for use by resource specialists and ranchers, but can also be used as an educational resource for teaching about soil quality on rangeland.

**Rangeland Sheet 1**

Soil Quality Information Sheet  
**Rangeland Soil Quality—Introduction**  
NRCS, Natural Resources Conservation Service May 2003

**What is rangeland?**  
Rangeland is land used to raise animals on vegetation in predominantly grass, shrubland, forest, tundra, or sedge. This land includes rangeland, pastures, meadows, vernal pools, some steppes, tundra, most of alpine tundra, and some marshes, and wetlands.



**What is rangeland health?**  
Rangeland health is the degree to which the integrity of the soil, the vegetation, the water, and the air are all in the ecological processes of the ecosystem are balanced and sustained.

**What is soil?**  
Soil is a dynamic mixture that supports plants. It consists of mineral particles of different sizes, sand, silt, and clay, organic matter, and moisture content. It is the result of weathering of primary minerals and secondary minerals. It is the result of weathering of primary minerals and secondary minerals. It is the result of weathering of primary minerals and secondary minerals.

**Why is soil quality important?**  
Changes in soil quality that affect the ability of vegetation to grow are a result of soil quality changes.

**Rangeland Sheet 2**

Soil Quality Information Sheet  
**Rangeland Soil Quality—Organic Matter**  
NRCS, Natural Resources Conservation Service May 2003

**What is soil organic matter?**  
Soil organic matter is carbon-rich material that includes roots, animal and microbial bodies in various stages of decomposition. It is the soil's most abundant nutrient source until they die and begin to decay.

**What is soil organic matter important?**  
Soil organic matter is important because it increases the ability of soil to store and supply water, nutrients, and air.

**How do we get more information?**  
For additional information, refer to the following information sheets: 1. Soil Quality Information Sheet 1: Introduction to Soil Quality Information Sheets; 2. Soil Quality Information Sheet 3: Soil Structure and Stability; 3. Soil Quality Information Sheet 4: Soil Water and Nutrient Availability; 4. Soil Quality Information Sheet 5: Soil Temperature and Moisture; 5. Soil Quality Information Sheet 6: Soil Acidity and pH; 6. Soil Quality Information Sheet 7: Soil Salinity and Sodicity; 7. Soil Quality Information Sheet 8: Soil Erosion and Sedimentation; 8. Soil Quality Information Sheet 9: Soil Compaction and Bulk Density; 9. Soil Quality Information Sheet 10: Soil Biological Health.

**Rangeland Sheet 3**

Soil Quality Information Sheet  
**Rangeland Soil Quality—Organic Matter**  
NRCS, Natural Resources Conservation Service May 2003

**What is soil organic matter?**  
Soil organic matter is carbon-rich material that includes roots, animal and microbial bodies in various stages of decomposition. It is the soil's most abundant nutrient source until they die and begin to decay.

**What is soil organic matter important?**  
Soil organic matter is important because it increases the ability of soil to store and supply water, nutrients, and air.

**How do we get more information?**  
For additional information, refer to the following information sheets: 1. Soil Quality Information Sheet 1: Introduction to Soil Quality Information Sheets; 2. Soil Quality Information Sheet 2: Soil Quality Information Sheet—Introduction; 3. Soil Quality Information Sheet 4: Soil Water and Nutrient Availability; 4. Soil Quality Information Sheet 5: Soil Temperature and Moisture; 5. Soil Quality Information Sheet 6: Soil Acidity and pH; 6. Soil Quality Information Sheet 7: Soil Salinity and Sodicity; 7. Soil Quality Information Sheet 8: Soil Erosion and Sedimentation; 8. Soil Quality Information Sheet 9: Soil Compaction and Bulk Density; 9. Soil Quality Information Sheet 10: Soil Biological Health.

**Rangeland Sheet 4**

Soil Quality Information Sheet  
**Rangeland Soil Quality—Indicators for Assessment and Monitoring**  
NRCS, Natural Resources Conservation Service May 2003

**What are indicators?**  
Indicators are measurable soil properties that change in response to management and vegetation change.

**How do we get more information?**  
For additional information, refer to the following information sheets: 1. Soil Quality Information Sheet 1: Introduction to Soil Quality Information Sheets; 2. Soil Quality Information Sheet 2: Soil Quality Information Sheet—Introduction; 3. Soil Quality Information Sheet 3: Soil Organic Matter; 4. Soil Quality Information Sheet 5: Soil Temperature and Moisture; 5. Soil Quality Information Sheet 6: Soil Acidity and pH; 6. Soil Quality Information Sheet 7: Soil Salinity and Sodicity; 7. Soil Quality Information Sheet 8: Soil Erosion and Sedimentation; 8. Soil Quality Information Sheet 9: Soil Compaction and Bulk Density; 9. Soil Quality Information Sheet 10: Soil Biological Health.

**Rangeland Sheet 5**

Soil Quality Information Sheet  
**Rangeland Soil Quality—Soil Structure and Stability**  
NRCS, Natural Resources Conservation Service May 2003

**What is soil structure and stability?**  
Soil structure and stability refer to the ability of soil particles to aggregate and resist erosion.

**Why is soil structure and stability important?**  
Soil structure and stability are important because they affect the soil's ability to store and supply water, nutrients, and air.

**How do we get more information?**  
For additional information, refer to the following information sheets: 1. Soil Quality Information Sheet 1: Introduction to Soil Quality Information Sheets; 2. Soil Quality Information Sheet 2: Soil Quality Information Sheet—Introduction; 3. Soil Quality Information Sheet 3: Soil Organic Matter; 4. Soil Quality Information Sheet 4: Soil Water and Nutrient Availability; 5. Soil Quality Information Sheet 5: Soil Temperature and Moisture; 5. Soil Quality Information Sheet 6: Soil Acidity and pH; 6. Soil Quality Information Sheet 7: Soil Salinity and Sodicity; 7. Soil Quality Information Sheet 8: Soil Erosion and Sedimentation; 8. Soil Quality Information Sheet 9: Soil Compaction and Bulk Density; 9. Soil Quality Information Sheet 10: Soil Biological Health.

**Rangeland Sheet 6**

Soil Quality Information Sheet  
**Rangeland Soil Quality—Soil Temperature and Moisture**  
NRCS, Natural Resources Conservation Service May 2003

**What is soil temperature and moisture?**  
Soil temperature and moisture are important factors that affect plant growth and soil biological activity.

**Why is soil temperature and moisture important?**  
Soil temperature and moisture are important because they affect the soil's ability to store and supply water, nutrients, and air.

**How do we get more information?**  
For additional information, refer to the following information sheets: 1. Soil Quality Information Sheet 1: Introduction to Soil Quality Information Sheets; 2. Soil Quality Information Sheet 2: Soil Quality Information Sheet—Introduction; 3. Soil Quality Information Sheet 3: Soil Organic Matter; 4. Soil Quality Information Sheet 4: Soil Water and Nutrient Availability; 5. Soil Quality Information Sheet 5: Soil Structure and Stability; 6. Soil Quality Information Sheet 6: Soil Temperature and Moisture; 6. Soil Quality Information Sheet 7: Soil Acidity and pH; 7. Soil Quality Information Sheet 8: Soil Erosion and Sedimentation; 8. Soil Quality Information Sheet 9: Soil Compaction and Bulk Density; 9. Soil Quality Information Sheet 10: Soil Biological Health.

Download sheets from the NRCS-Soil Quality Institute website:  
[http://www.statlab.iastate.edu/survey\\_SQI/range.html](http://www.statlab.iastate.edu/survey_SQI/range.html)

- Rangeland Information Sheets topics:**
- Introduction
  - Indicators for Assessment and Monitoring
  - Aggregate Stability
  - Compaction
  - Infiltration
  - Organic Matter
  - Physical and Biological Soil Crusts
  - Soil Biota
  - Water Erosion
  - Wind Erosion



Also available from:  
Grazing Lands Technology Institute at <http://www.ftw.nrcs.usda.gov/glti/projects.html>