**Range Health: Dynamic Soil Properties.**

“Root biomass and health is a direct reflection of above ground biomass and health and critical for healthy soil biology.”

**Rainfall Simulator**

- **Physical**
  - Increased Nutrient cycling
  - Improved soil carbon
  - Decreased Runoff

- **Biological**
  - Increased biodiversity
  - Improved habitat for soil biota
  - Increased productivity of soil glues and Glomalin by soil biota

- **Chemical**
  - Decreased Nutrient cycling
  - Depleted soil carbon
  - Increased Runoff

**Soil Aggregates**

- Water stable aggregates
- Water
- Compacted soil

**Five Soil Health Principles**

- *Plant Diversity*
- *Cover The Soil*
- *Less soil disturbance*
- *Living roots year around*
- *Livestock integration/Adaptive grazing Mgt, rest/recovery*

**Take this to the next state:**

- Adaptive Grazing Management.
- Incorporate cool & warm season plants.
- Additional fencing for new smaller pastures.
- Practices that improve hydrology.
- Short duration grazing & longer recovery.
- Increase stocking density/high intensity.
- Continue the paradigm shift.

**Stop the degradation or improve this state:**

- Improve relationship between grazing and root growth.
- Re-seeding of cool & warm season plants/grass.
- Utilize herding techniques through pastures.
- Update existing or expand watering facilities.
- Transitioning will take time, experience, patience.
- Start with the end in mind (paradigm shift).

**Management: Short-duration, high intensity, low impact use.**

**Shallow Loamy**

- Good predator-prey relationships
- Cooler soil temperatures
- Water stable aggregates
- Compacted soil

**Management: Continuous summer grazing.**

**Shallow Loamy**

- Poor predator-prey relationships
- Higher soil relationships
- Poor habitat for soil biota
- Minimal use of Photosynthesis
- Weak aggregation or Compacted Not Water Stable

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Ref: Burleigh SWCD - Soil health http://bcscd.com/?id=23

Clarence Chavez: June 2014

Agronomy Tech Note 76: http://www.nrcs.usda.gov/wps/portal/nrcs/detail/nm/technical/?cid=nrcs144p2_068965