

## IMPLEMENTING RANGELAND MONITORING


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## Monitoring grazing lands

Range Beef Cow Symposium XX  
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Dr. Paul Meiman  
Assistant Professor of Rangeland Ecology and Management  
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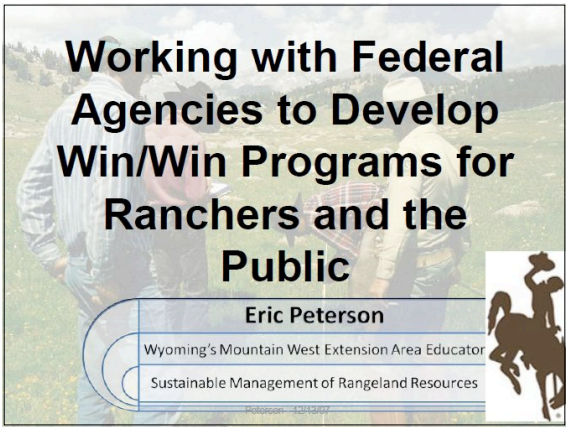


Warner College of  
Natural Resources

## Working with Federal Agencies to Develop Win/Win Programs for Ranchers and the Public


Eric Peterson

Wyoming's Mountain West Extension Area Educator  
Sustainable Management of Rangeland Resources



*"Treat the earth well: it was not given to you by your parents; it was loaned to you by your children."*

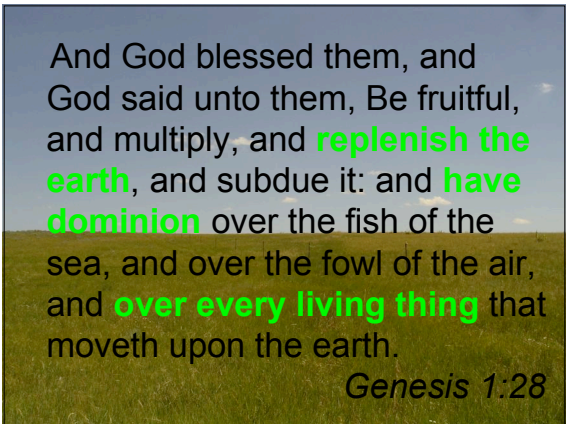
*"We do not inherit the earth from our ancestors, we borrow it from our children."*  
Ancient American Indian Proverb



Dave Wise, NRCS MN

And God blessed them, and God said unto them, Be fruitful, and multiply, and **replenish the earth**, and subdue it: and **have dominion** over the fish of the sea, and over the fowl of the air, and **over every living thing** that moveth upon the earth.

*Genesis 1:28*



**Whucha got?**

**Whucha want?**  
Whuhdiyuh want? – Terry Gompert

**Whucha gonna do?**

**Whud'ja do?**

**Did whucha did do whucha wanted?**

Whucha got? **Inventory/Assesment**

Whucha want?

Whucha gonna do?

Whud'ja do?

Did whucha did do whucha wanted?

Whucha got?

Whucha want? **Vision/Objectives**

Whucha gonna do?

Whud'ja do?

Did whucha did do whucha wanted?

Whucha got?

Whucha want?

Whucha gonna do? **Strategy/Tactics**

Whud'ja do?

Did whucha did do whucha wanted?

Whucha got?

Whucha want?

Whucha gonna do?

Whud'ja do? **Management Record**

Did whucha did do whucha wanted?

Whucha got?

Whucha want?

Whucha gonna do?

Whud'ja do?

Did whucha did do whucha wanted?

**Monitoring - must be  
information, not just data**

“You can't manage  
what you don't  
measure”

Morris A Cohen, Wharton Professor and Co-Director,  
Fishman-Davidson Center for Service and Operations Management

NOT W. Edwards Deming

Fixed cost of operating grazingland is FIXED

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-Maintain or increase productivity per unit  
-Qualify for incentives (e.g. CSP)  
-Ensure land tenure security



# Methods... to detect change

## Monitoring Methods

- Photographs
- Frequency Methods: Pace Frequency, Quadrat Frequency and Nested Frequency methods
- Dry Weight Rank Method
- Daubenmire Method
- Line Intercept Method
- Step-Point Method
- Point-Intercept Method: Sighting Devices, Pin Frames, and Point Frames
- Cover Board Method
- Density Method
- Double-Weight Sampling
- Harvest Method
- Comparative Yield Method
- Visual Obstruction Method: Robel Pole
- Other Methods
  - Weight Estimate and Ocular Reconnaissance Methods
  - Community Structure Analysis Method
  - Photo Plot Method

Don't I have to be a  
botanist to be  
successful with  
rangeland monitoring?

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Most ecological sites are dominated by about a half dozen grasses

Operators already know those important plants

Most troublesome weeds already known

## Methods... to detect change

### GPS

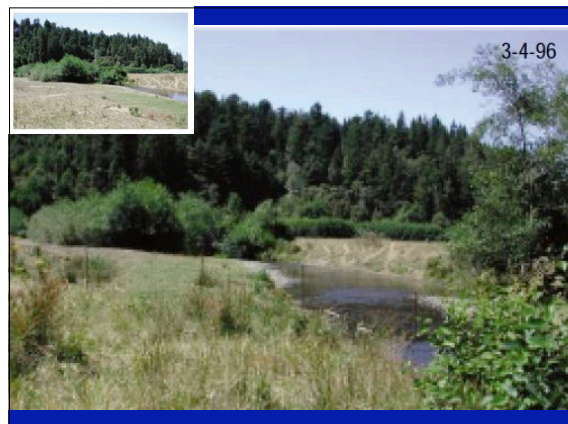


Repeatable location  
Useful for tracking  
“patches”



### Photopoints and photoplots

... a picture is worth  
a thousand ... numbers



## Cover



Point technique  
Measured or "paced" transect  
Reflects botanical composition

## Density



Plot technique  
Estimates units (plants or tillers) per unit area  
Change in density related to vigor or production

## Species frequency



Plot technique  
Only meaningful  
with repetition  
Sensitive to plot size



Which monitoring technique was most "user friendly?"

Step point	5
Laser point	2
Single point	
Species frequency	5
<b>Photo Point</b>	<b>8</b>

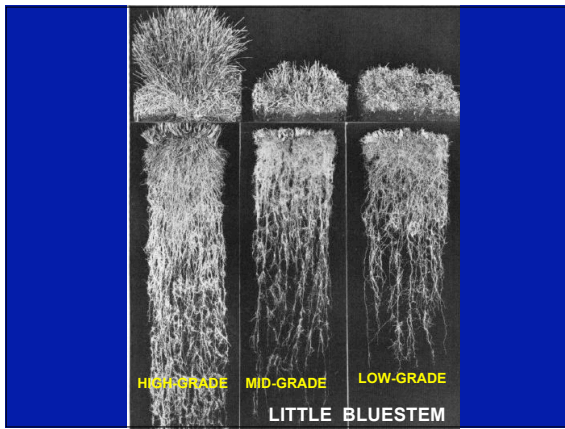
Who has time for another job?

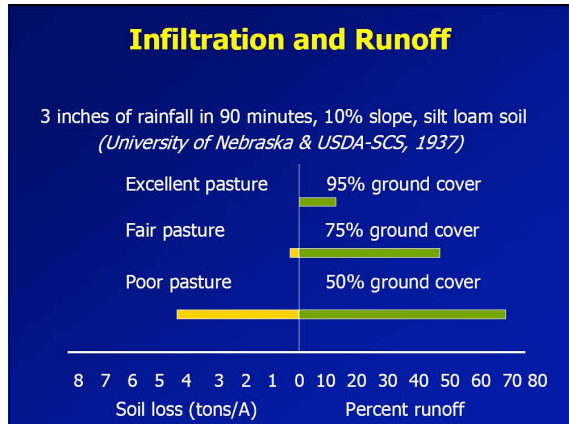
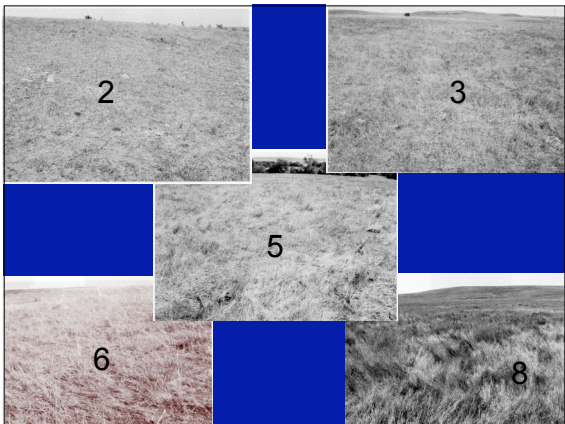
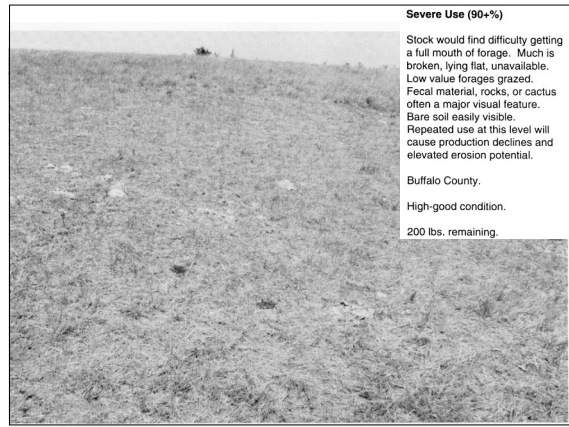
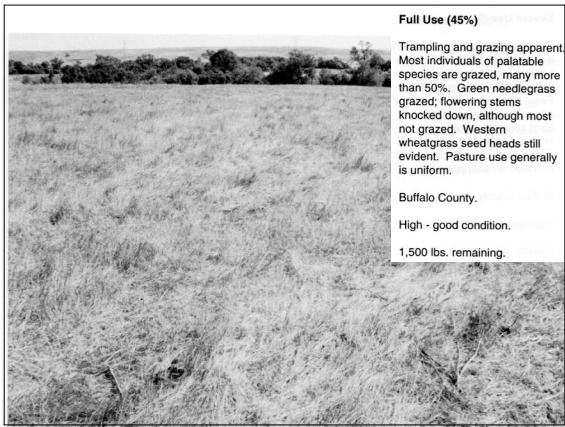
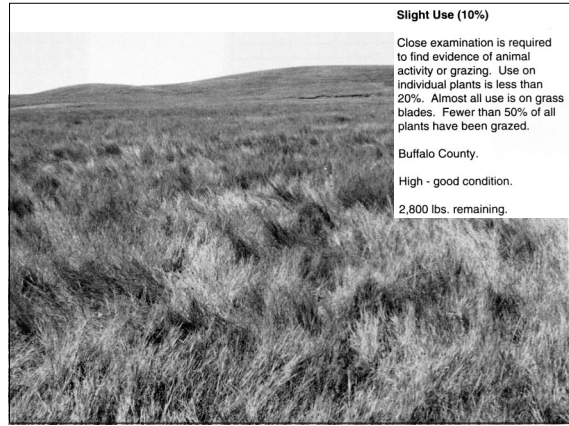
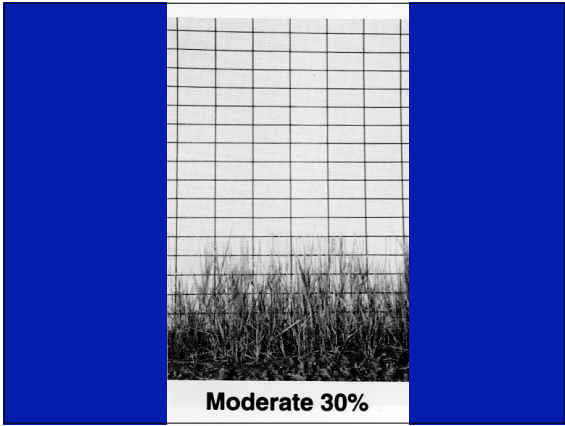
## Effects of Different Intensities of Grazing on Depth and Quantity of Roots of Grasses'

J. E. WEAVER  
*Professor of Plant Ecology*  
*University of Nebraska, Lincoln, Nebraska*

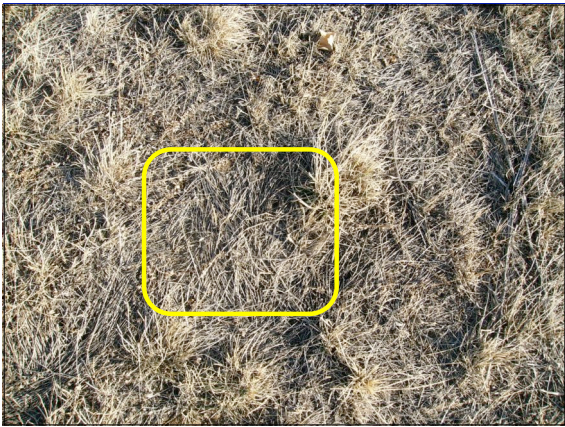
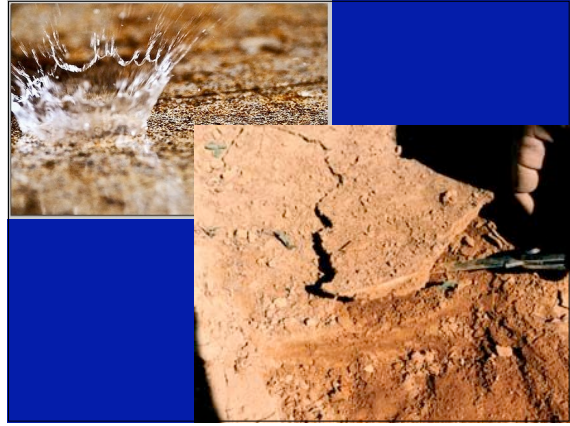
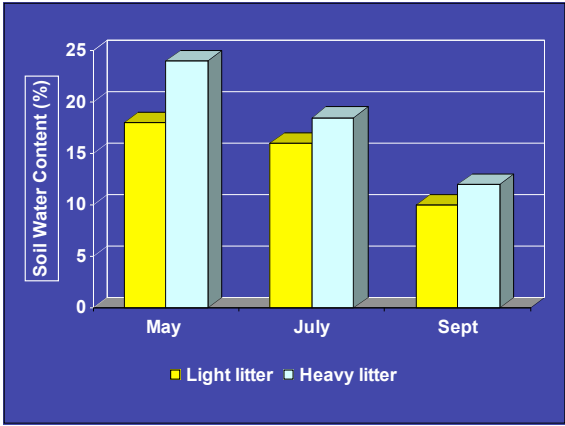
THE writer has been interested in prairies, pastures, and root depth and distribution over a period of many years. He had the privilege of examining these relationships in the Palouse prairie of Washington long ago while numerous representative areas still remained in a virgin condition (5, 6). Extensive studies have been made in the hardlands of Colorado, Kansas and Nebraska many years be-

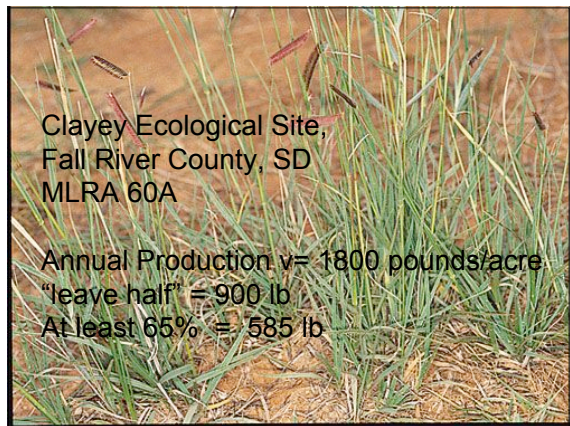
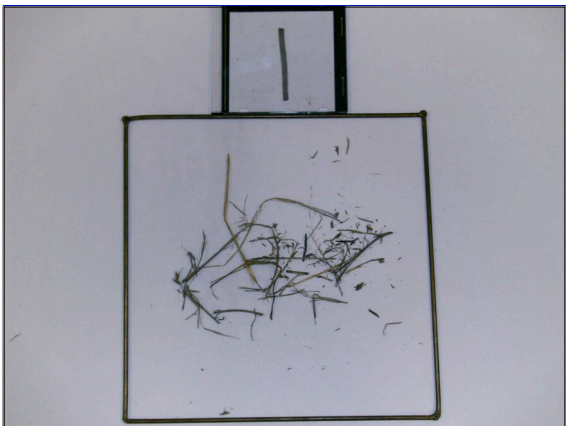
method of obtaining a sample of the entire root system from the soil surface to the deepest root tips is a modification of the direct or trench method fully described in 1926 (9). It consists in the digging of a trench to the desired depth in a particular soil and the obtaining of a single soil block (monolith) extending from the surface to a depth of 3 to 6 feet. The monolith is of such dimensions 2.5 feet wide













- Try something!
- Photo monitoring
- Set a date
- Make an appointment
- Try it again
- Be patient (improvement can be slow)
- Keep Learning
- Stay organized

