

IMPLEMENTING RANGELAND MONITORING

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Monitoring grazing lands

Range Beef Cow Symposium XX
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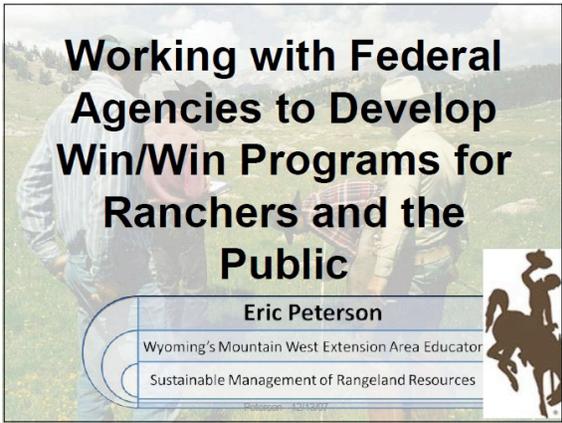


Warner College of
Natural Resources

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."

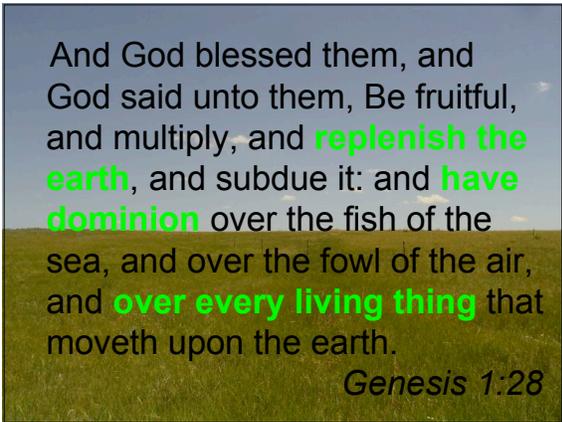
"We do not inherit the earth from our ancestors, we borrow it from our children."
Ancient American Indian Proverb



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
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-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?

Biomass from NGP grasslands tends to be 75-85% grasses

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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
Photo Point	8

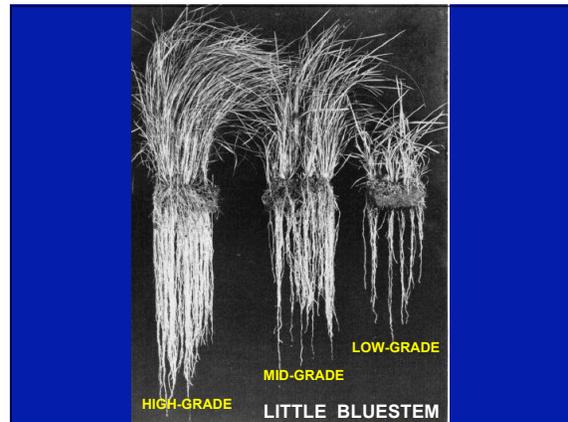
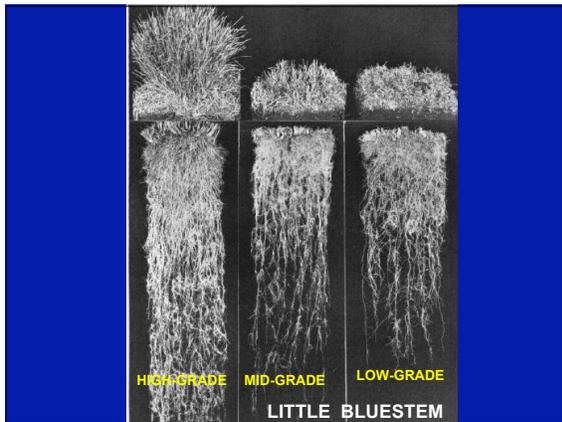
Who has time for another job?

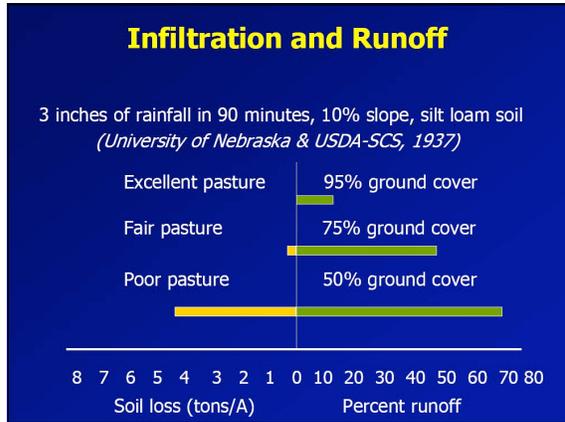
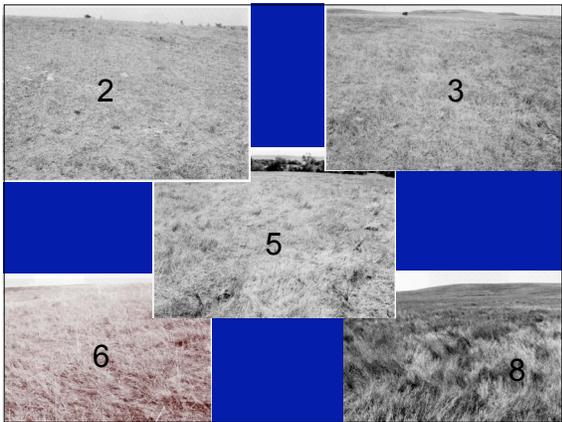
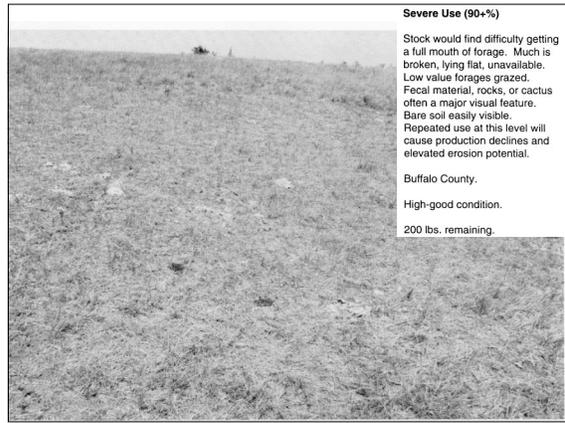
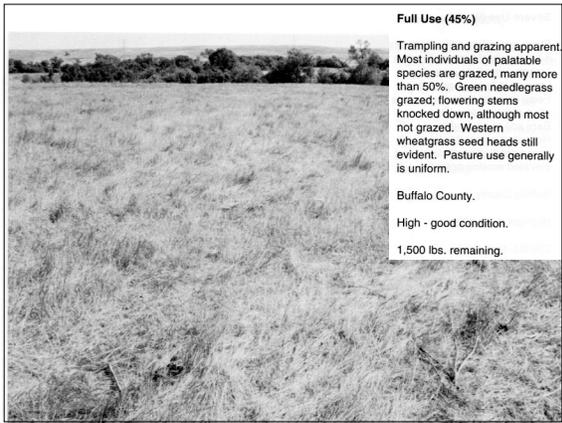
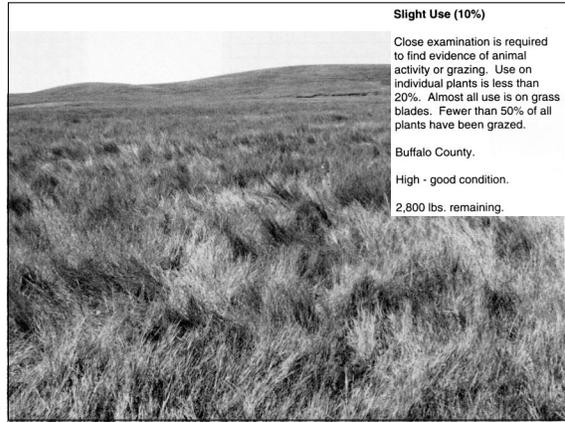
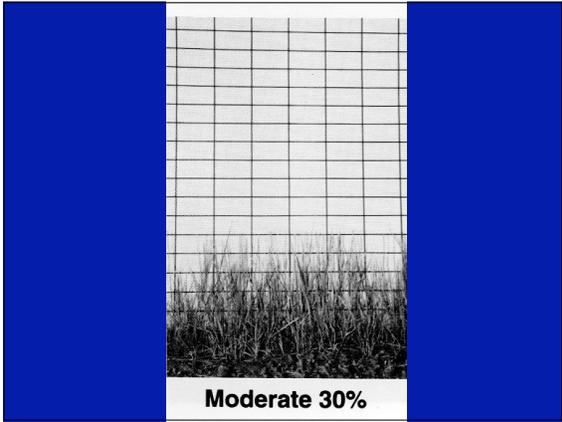
Effects of Different Intensities of Grazing on Depth and Quantity of Roots of Grasses'

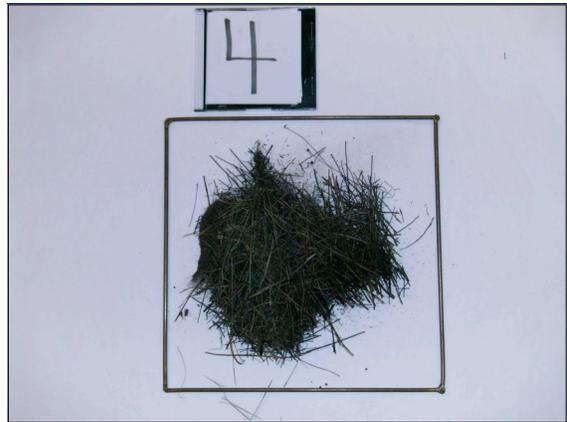
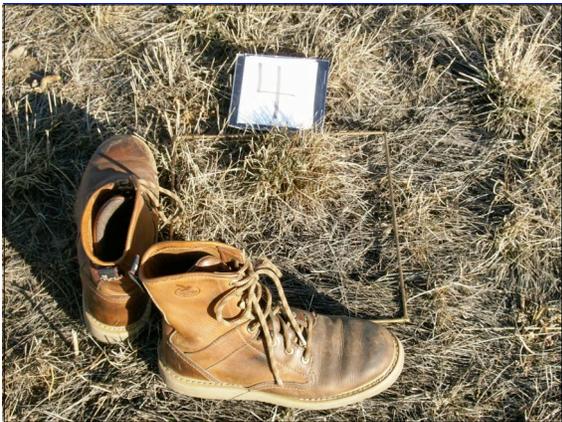
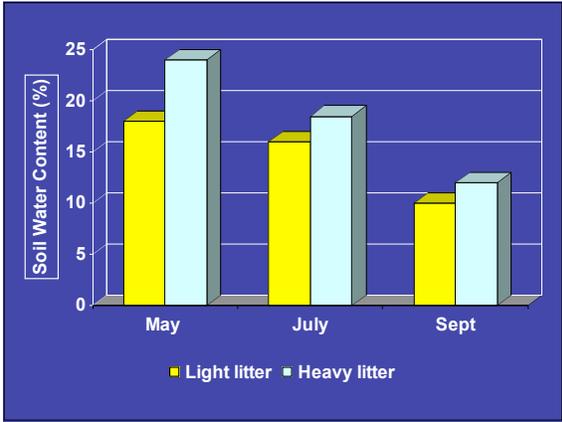
J. E. WEAVER
Professor of Plant Ecology
University of Nebraska, Lincoln, Nebraska

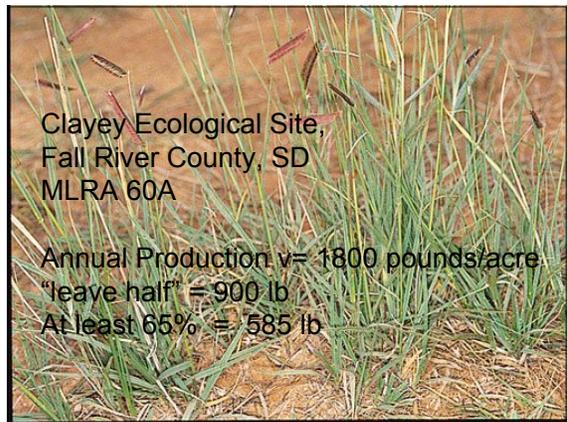
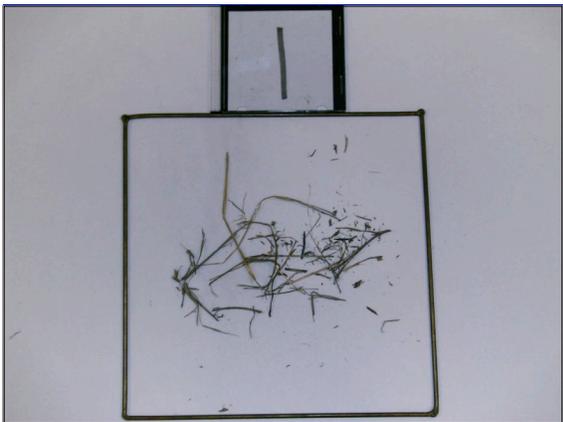
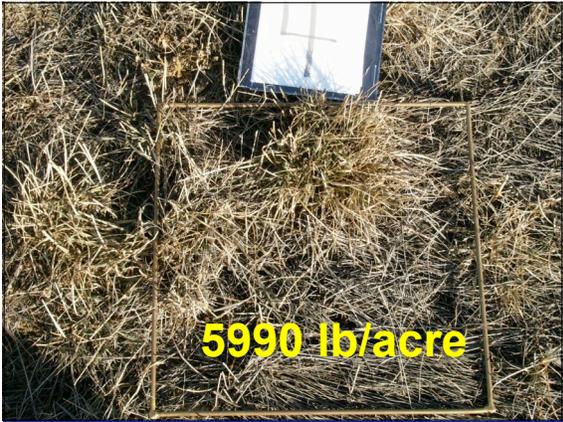
THE writer has been interested in prairies, pastures, and root depth and distribution over a period of many years. He had the privilege of examining these relationships in the Palouse prairie of Washington long ago while numerous representative areas still remained in a virgin condition (5, 6). Extensive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

