

Ranch Planning

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Range Improvement Task Force

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College of Agricultural, Consumer and Environmental Sciences

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Planning

- **A basic management function involving formulation of one or more detailed plans to achieve optimum balance of needs or demands with the available resources**
 - **Identify goal and objectives**
 - **Strategy to achieve them**
 - **Implements, directs and monitors**

Why?

- Required- Federal Programs
- Improve Management
- Achieve Goals and Objectives
- For your heirs
- Document and demonstrate good management

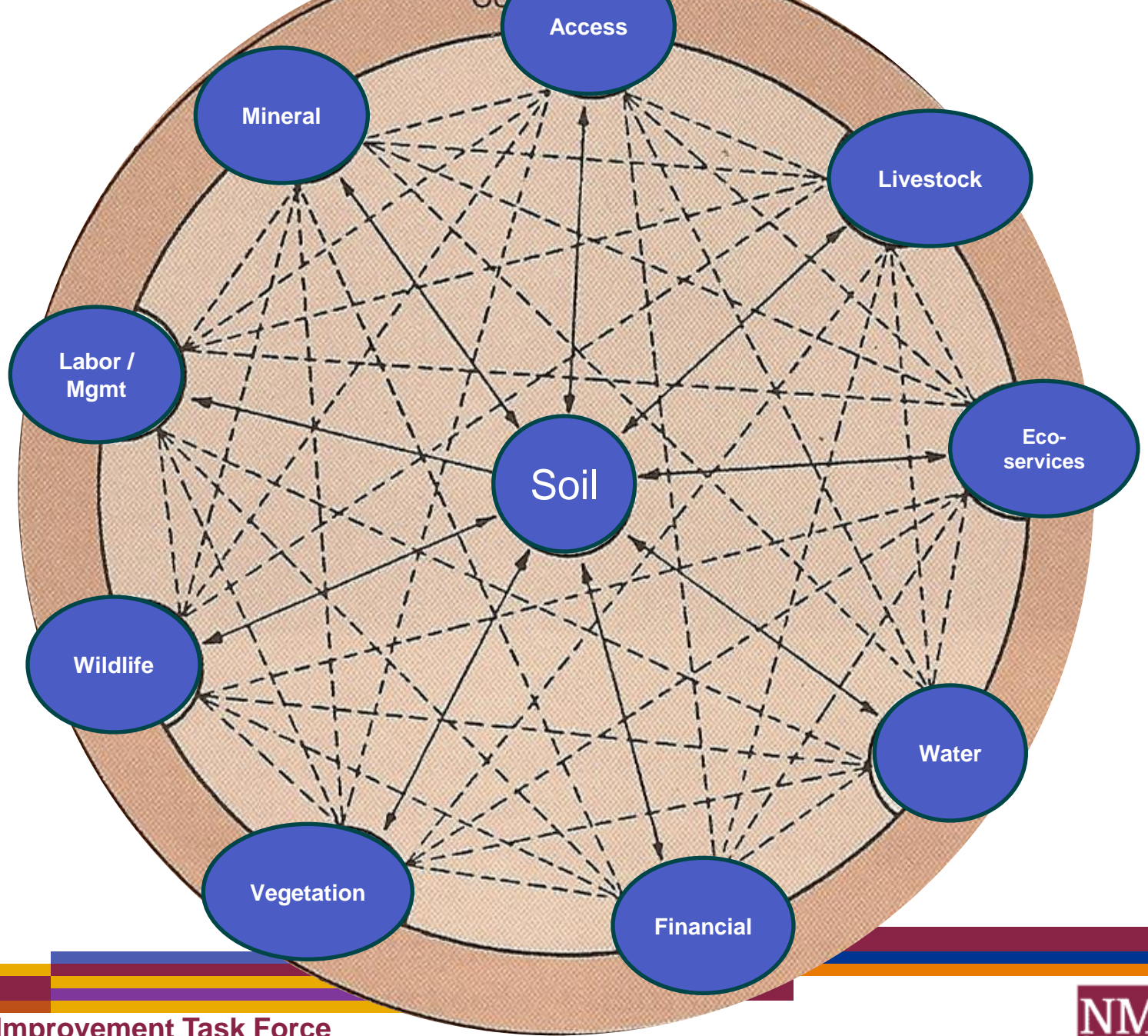
“By failing to prepare, you are preparing to fail”
Benjamin Franklin

“The Ranch”

- Land
- Vegetation
- Water
- Management
- Livestock
- Improvements
- Wildlife
- Labor

Continued

- \$\$\$
- Lifestyle
- Culture

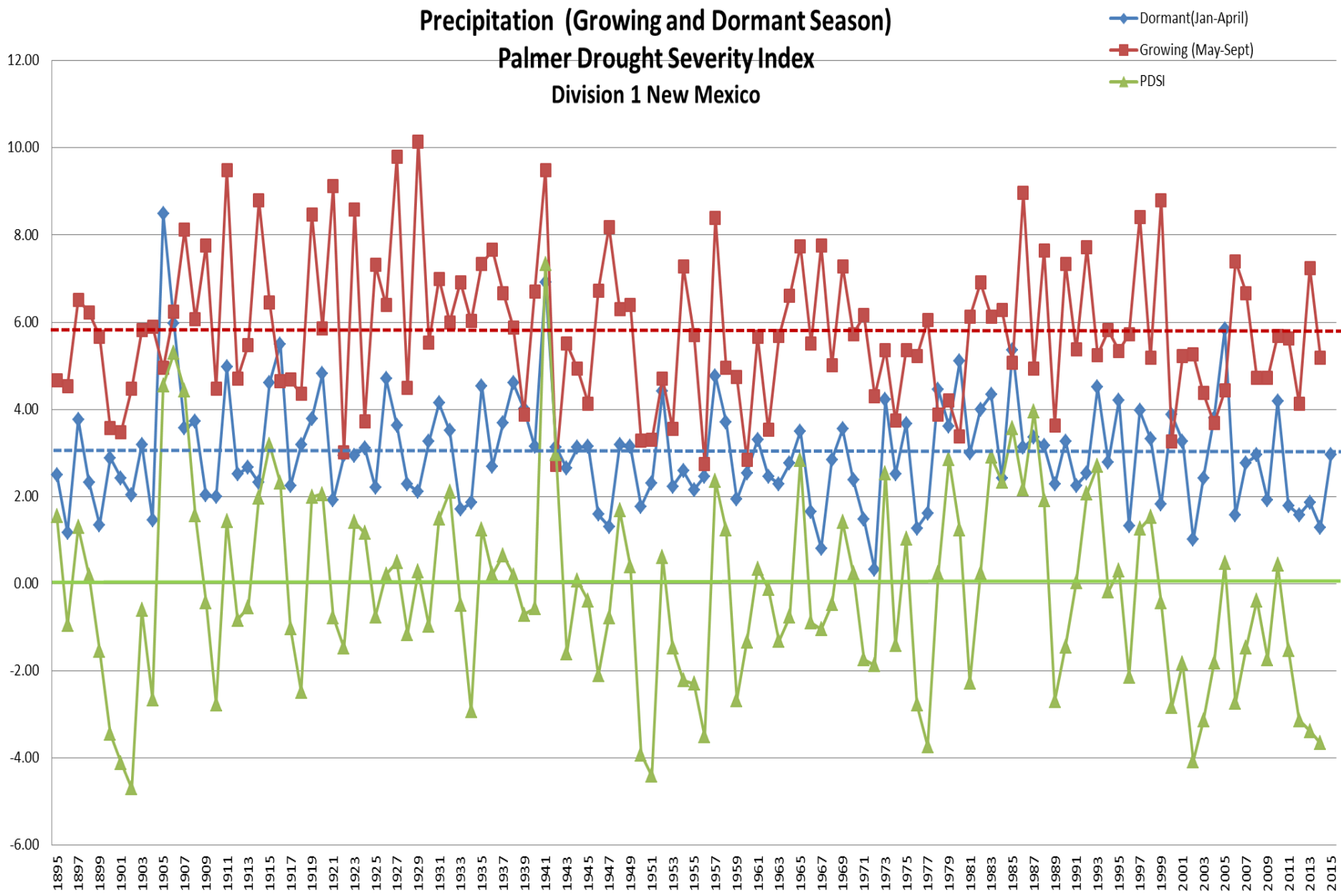


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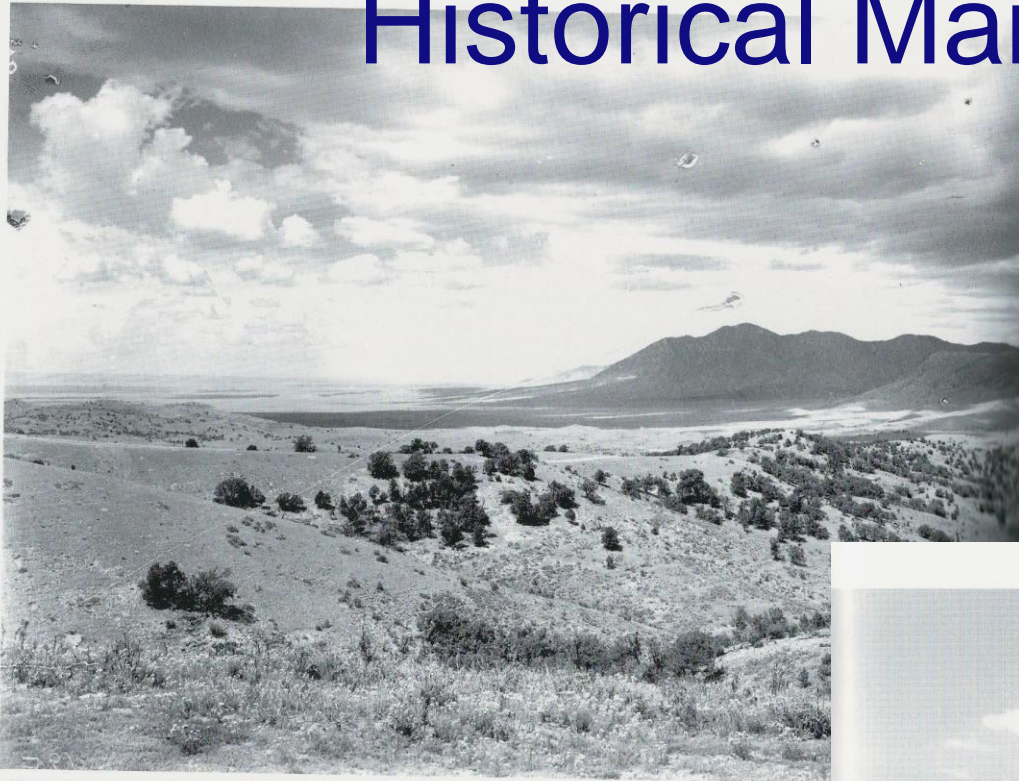
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Historical Information



Historical Management



33A. Date: Summer, 1899. Credit: R. T. Hill, U. S. Geological Survey.
Taken from the Fort Stanton - Tularosa wagon road facing north, with Nogal hidden from view (center) 2 miles distant. The hills surrounding Nogal are virtually devoid of trees, as in photos 20A and 21A. It appears there are small dead Juniper trees scattered throughout the landscape.



33B. Date: June, 1996. Credit: E. Hollis Fuchs.
Taken from State Road 37, trees were cut to enable visibility. Pinon and Juniper trees dominate. Not visible within the tree cover are charred remains of old Juniper trees, some of which were visible in the 1899 photo. Elevation is about 7,100 feet.

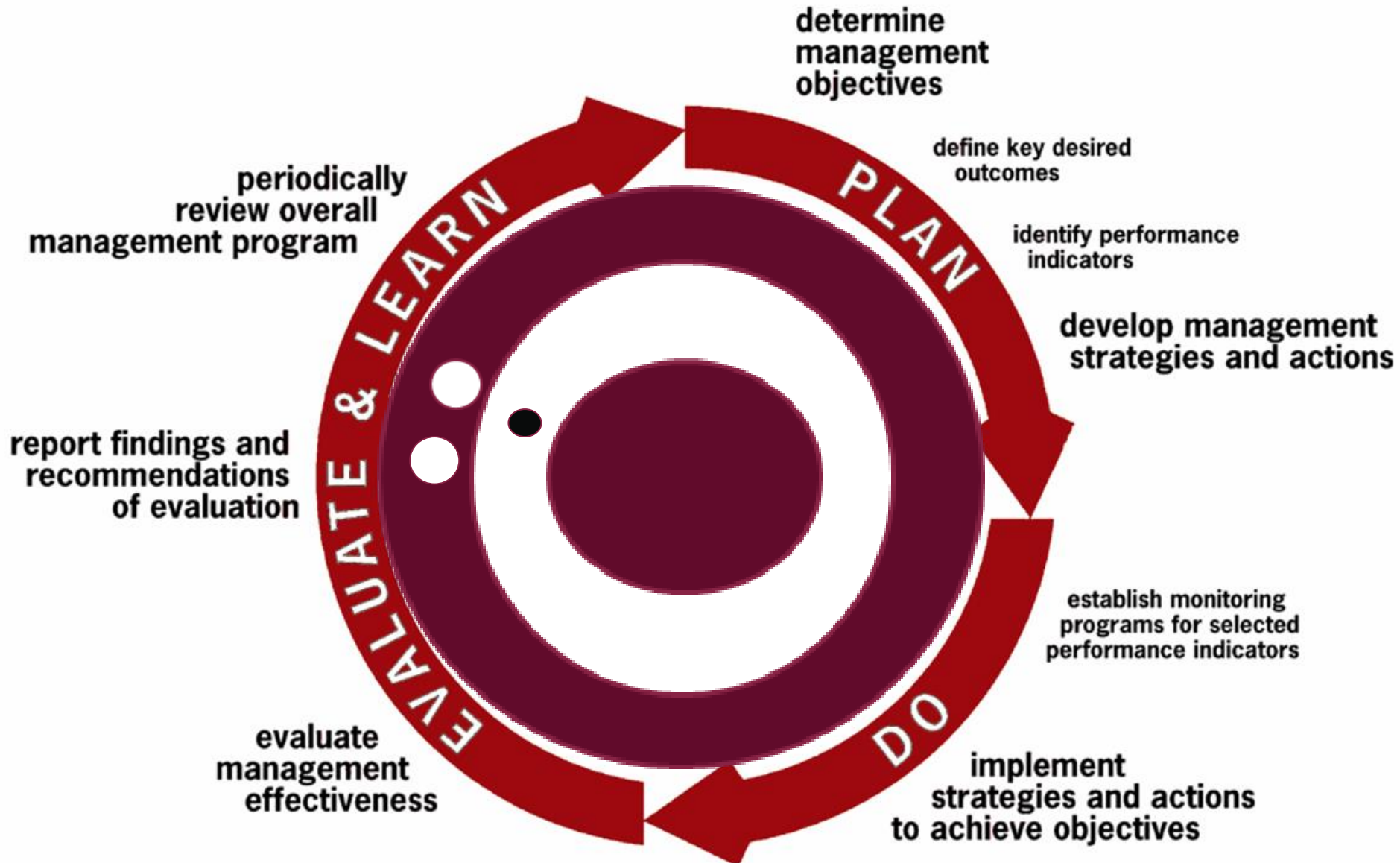


29B. Date: June, **1996**. Credit: E. Hollis Fuchs.

Taken from about 20 feet behind the 1905 photo point to avoid numerous Pinon trees that blocked the view. Pinon trees dominate the site, and there appears to be a greater amount of Gambel Oak as well. Elevation is about 6,900 feet.



Goals & Objectives- Targets



Goals & Objectives

- Goals are broad; objectives are narrow.
- Goals are general intentions; objectives are precise.
- Goals are intangible; objectives are tangible.
- Goals are abstract; objectives are concrete.
- Goals can't be validated as is; objectives can be validated.

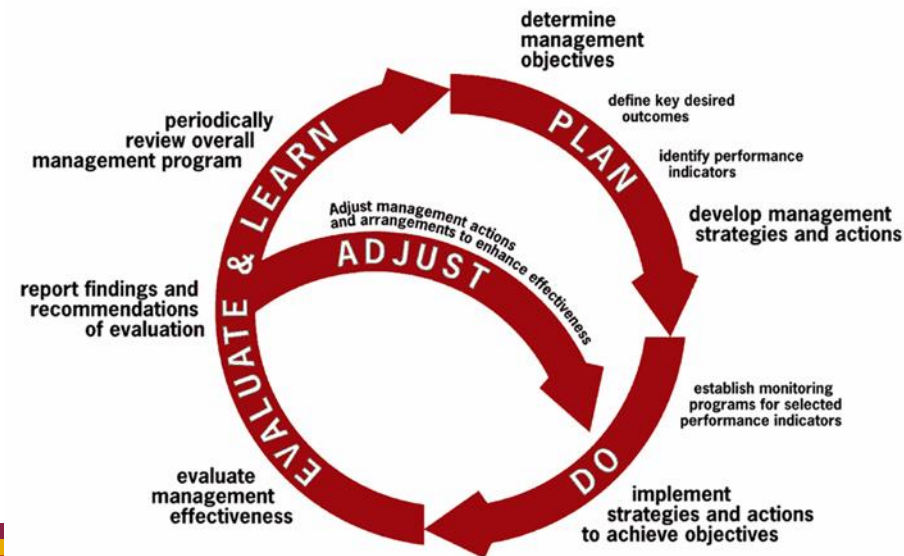


05/31/2013



Ranch Planning: Range Resources

- Assessment
- Planning
- Implementation
- Monitoring
- Evaluate
- Adjust Plan



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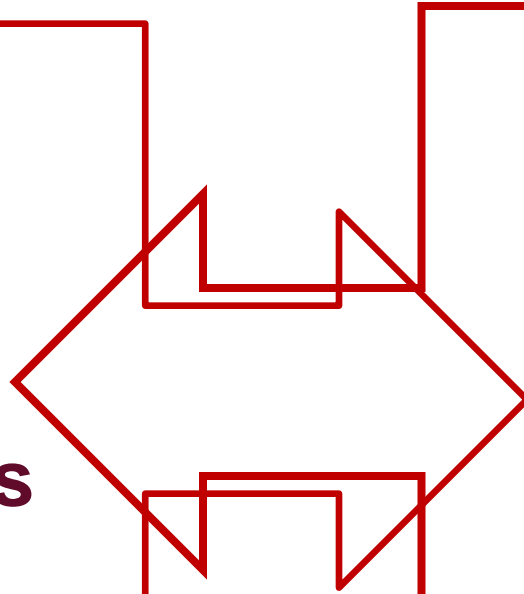


Assessment

• Inventory & Risks



- Land
- Vegetation
- Water
- Management
- Improvements
- Labor
- Capital



- Livestock
- Wildlife
- Aesthetics
- Eco-services

Principles in Range/Grazing Management

1. *Proper stocking rate.
 2. Proper distribution of grazing animals.
 3. Proper kinds of grazing animals.
 4. Proper grazing system.
- *Proper stocking rate (Intensity) considered the most important part of range/grazing management.



Plan

I. Ranch Goals & Objectives

A. Rangeland Plan goals and objectives

1. Grazing plan/Grazing systems

- Implement
- Monitor- What, When, Where, How
- Evaluate-How and Critical Dates
- Adjust-Critical Dates

2. Drought plan

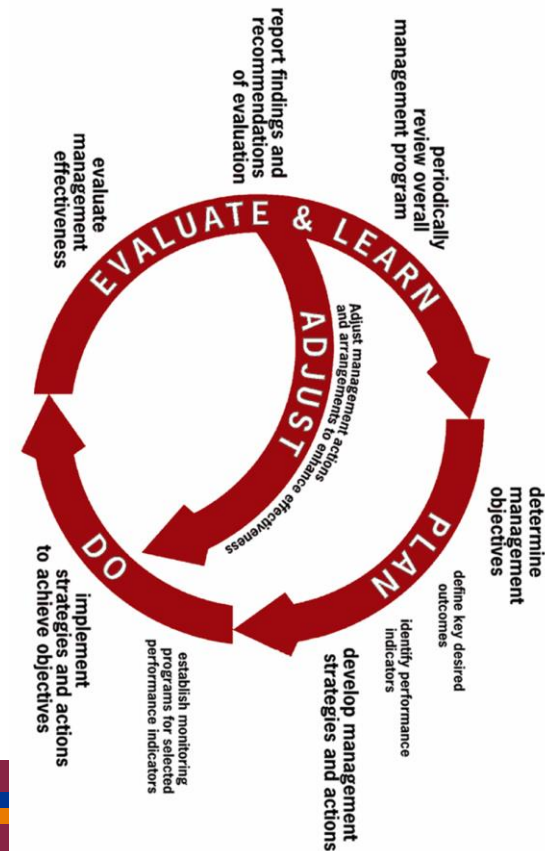
- Monitor- What, When, Where, How,
- Evaluate-How and Critical Dates
- Adjust-Critical Dates

B. Livestock Plan goals and objectives

C. Wildlife Plan goals and objectives

D. Financial Plan goals and objectives

E. Other Plan goals and objectives



Plan

I. Ranch Goals & Objectives

A. Rangeland Plan goals and objectives

1. Grazing plan/Grazing systems

- **Pasture/Pastures**
 - **Acres? Grazable Acres?**
 - **Vegetation Types?**
 - **Forage Production by Vegetation type?**
 - **Grazing Animals?**
 - **Period Grazed?**
 - **Water Availability?**
 - **Slope?**
 - **Utilization?**
 - **STOCKING RATE?**



Grazable Acres



Distance From Water		
Miles	KM	Percent Reduction in Grazing Capacity
0-1	0 - 1.6	None
1-2	1.6 - 3.2	50
2	Over 3.2	100 (consider ungrazable)

Percent Slope	Percent reduction in grazing capacity
0 - 10	None
11 - 30	30
31 - 60	60
Over 60	100 (consider ungrazable)

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Grazing Animal

Animal	Lbs	Daily Dry Matter Intake	Daily Dry Matter Intake	Animal Unit Equivalent	Water Intake	
		%	Lbs		gal/day	gal/year
Cattle (mature)	1,000	0.02	20	1	24	8,760
Cattle (yearling)	750	0.02	15	0.75	12	4,380
Sheep	150	0.02	3	0.15	2	730
Horse	1,200	0.03	36	1.8	15	5,475
Elk	700	0.02	14	0.7	12	4,380
Mule deer	150	0.02	3	0.15	2	730
Goat	100	0.02	2	0.1	2	730

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Example

Year:	2015											
Pasture:	J	F	M	A	M	J	J	A	S	O	N	D
<i>Loco</i>							X	X	X			
Cabin										X	X	X
Grand	X	X	X	X								
Pine					X	X						

Year:	2016											
Pasture:	J	F	M	A	M	J	J	A	S	O	N	D
<i>Loco</i>										X	X	X
Cabin	X	X	X									
Grand				X	X	X	X					
Pine								X	X			

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Example: Grazed for 3 Months

Pasture: <i>Loco</i>		Utilization: 40%		Management: <i>Private</i>		Animal: Cow/Calf	
Vegetation		Usable Acres	Months Grazed	Production (lbs/ac)	Stocking Rate (Head- Cattle)		
<i>Pinyon-Juniper</i>		<i>2500</i>	<i>July-Sept</i>	<i>500</i>	<i>278</i>		
<i>Grassland</i>		<i>1000</i>	<i>July-Sept</i>	<i>700</i>	<i>156</i>		
<i>Sagebrush</i>		<i>1500</i>	<i>July-Sept</i>	<i>400</i>	<i>133</i>		
Total		<i>5000</i>	<i>July-Sept</i>		<i>567</i>		

Calculation (Pinyon/Juniper):

Total Forage Production= Acres*Production (2,500*500=1,250,000 lbs)

Usable Forage= Total Production*Utilization Rate (1,250,000*40%= 500,000 lbs)

Cow Days= Usable forage/20 (500,000/20= 25,000)

Stocking Rate = Cow Days/Days Grazed (25,000/90= 278 head)

Example: Grazed for Yearlong

Pasture: <i>Loco</i>		Utilization: 40%	Management: <i>Private</i>		Animal: Cow/Calf
	Vegetation	Usable Acres	Months Grazed	Production (lbs/ac)	Stocking Rate (Head- Cattle)
	<i>Pinyon-Juniper</i>	<i>2500</i>	<i>Jan-Dec</i>	<i>500</i>	<i>68</i>
	<i>Grassland</i>	<i>1000</i>	<i>Jan-Dec</i>	<i>700</i>	<i>38</i>
	<i>Sagebrush</i>	<i>1500</i>	<i>Jan-Dec</i>	<i>400</i>	<i>33</i>
	Total	<i>5000</i>	<i>Jan-Dec</i>		<i>139</i>

Calculation (Pinyon/Juniper):

Total Forage Production= Acres*Production (2,500*500=1,250,000 lbs)

Usable Forage= Total Production*Utilization Rate (1,250,000*40%= 500,000 lbs)

Cow Days= Usable forage/20 (500,000/20= 25,000)

Stocking Rate = Cow Days/Days Grazed (25,000/365= 68 head)

Monitoring

- Objective
- Repeatabable
- Quantitative
- Sensible
- Efficient
- Accurate
- Targeted
- Improve mgmt. decisions



Where, When, What, How, & Why?

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Where?



- Depends on Goals & Objectives
- Representative Area- Key Area
 - Areas that represent a bulk of the pasture
 - NOT near water sources, salt placement, fences, roads or livestock trails
 - How many?
 - At least one per range site or vegetation type.

Where?



- Key Areas-
 - Represent the majority of pasture, ranch, or allotment
 - $\frac{1}{4}$ - 1 mile from water sources
 - Slope $<15\%$
 - Satisfactory soil conditions
 - > 5 acres in size
 - 1 area for each range site or vegetation type

Parking Lot

Bernalillo

Driveway

Indian Service Route 01

Indian Service Route 01

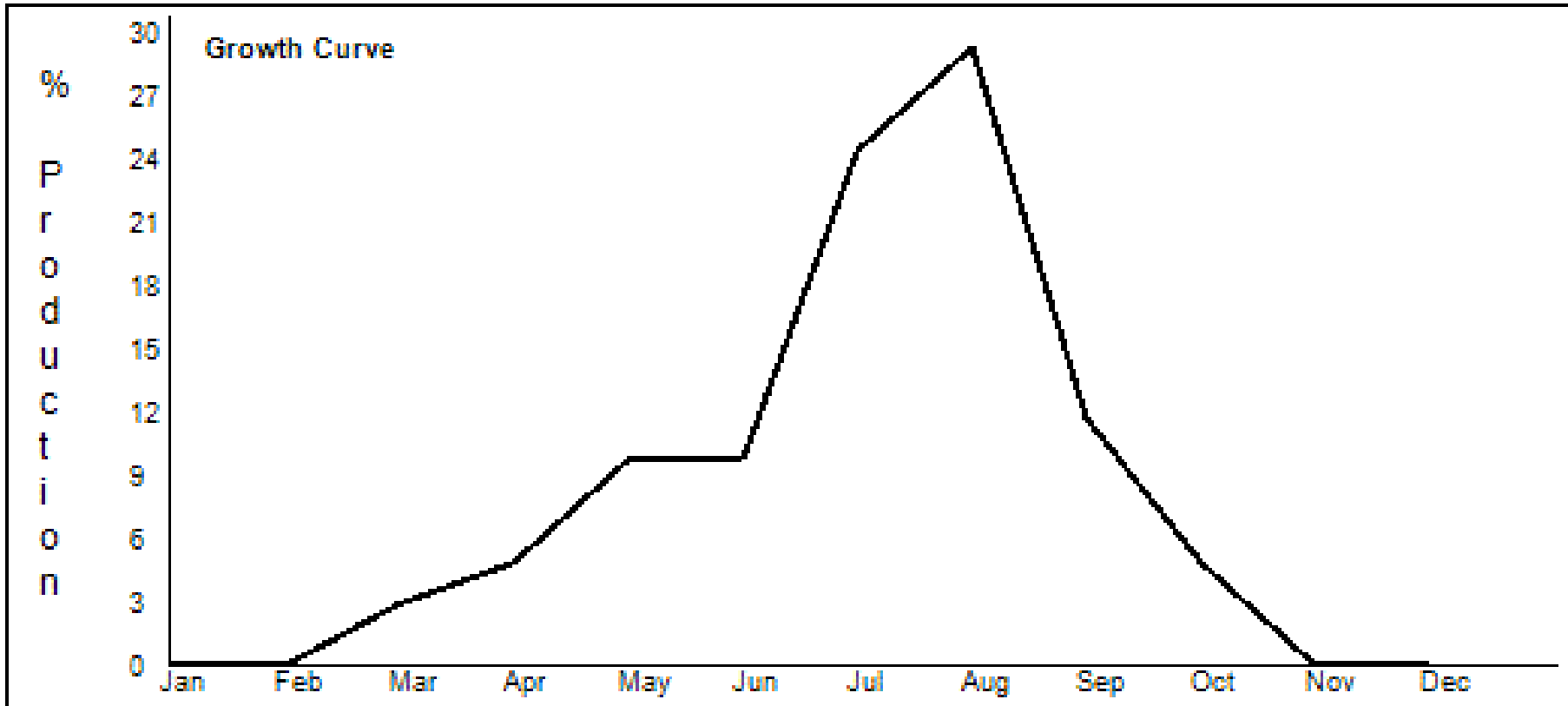


When?

- Depends on Goals & Objectives
 - Prior to grazing
 - Middle of grazing season
 - Post grazing
- If only once per year- at the end of the growing season.



Annual Growth Curve



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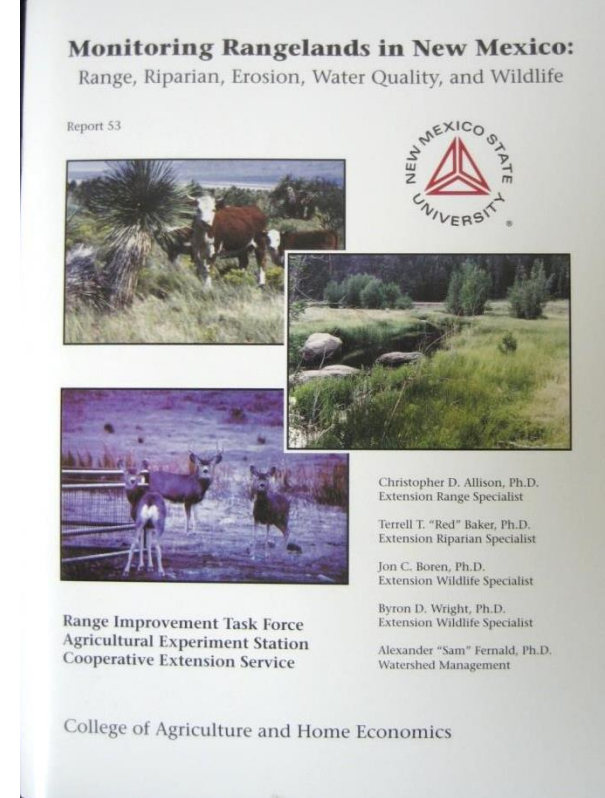
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What? & How?

- Precipitation
- Grazing dates
- Number and class of livestock
- Photo
- Relative use score
- Production score
- Estimated cover
- Mapping



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What? & How?

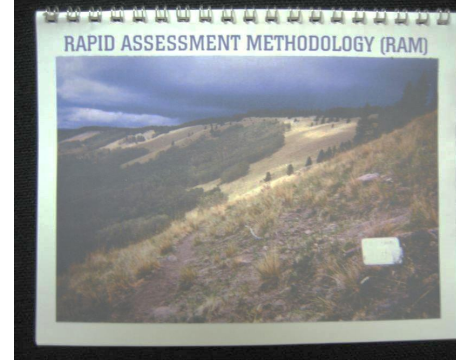
APPENDIX A

RANGE MONITORING DATA SHEET

Ranch _____ Allotment _____ Pasture _____
 Date _____

Key Area Location	Number and Class of Livestock	Date In	Date Out	Photo Taken Y/N Location, Date	Relative Use Score & Date	Production Score & Date	Remarks & Incidences
					1=None to Slight 2=Light 3=Moderate 4=Heavy 5=Severe	1=Extreme Drought 2=Below Average 3=Average 4=Above Average 5=Extremely High	

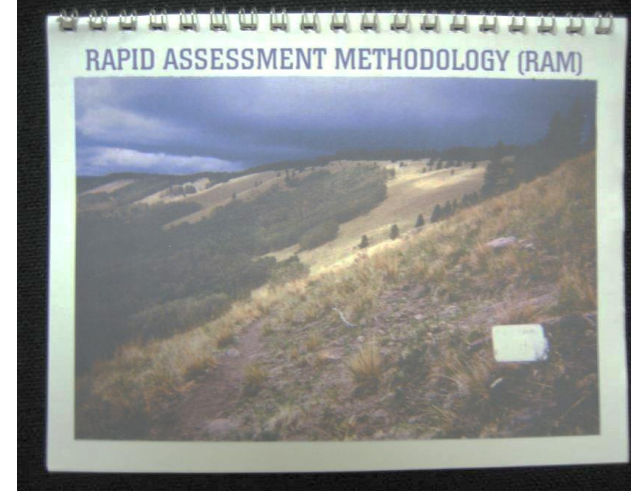
What? & How?



- Productivity, Above Ground Biomass, or Standing Crop (lbs/acre)
 - Usually refers to the weight of organisms present at on time.
 - Direct harvesting is considered the most reliable method.
 - Weight estimates techniques.
 - Used to determine: grazing capacity, ecological condition, range trend, watershed health.

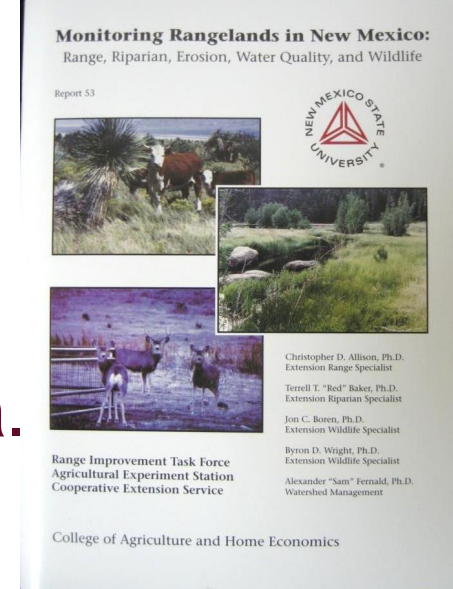
What? & How?

- Cover (basal or canopy)
 - Percentage of ground area covered by aerial parts of live plants, litter, gravel and rocks.
 - Used to evaluate soil protection, watershed health, ecological condition, and range trend.

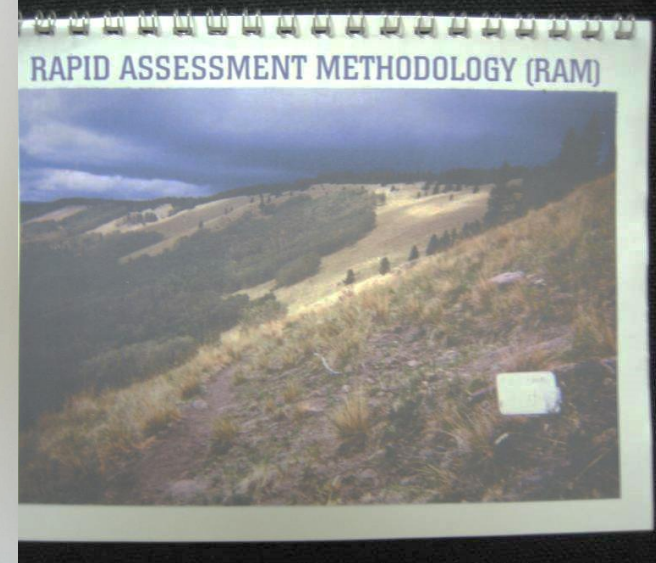
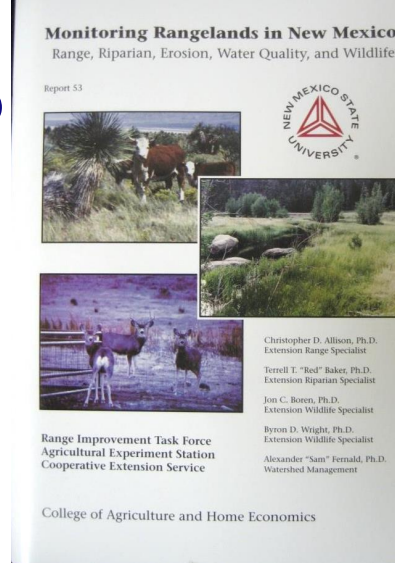


What? & How?

- **Density**
 - The number of individual plants per area.
 - Used to determine: plant survival, plant establishment, and range trend.
- **Frequency**
 - The presence or absence of individuals of a species in a population
 - Used to evaluate: species distribution, change in abundance of species over time.



What? & How?



- Utilization

- Proportion of current year's forage production consumed by grazing animals.

- Stubble Height

- Measurement of the amount of forage remaining after grazing.

<http://aces.nmsu.edu/pubs/taskforce/>

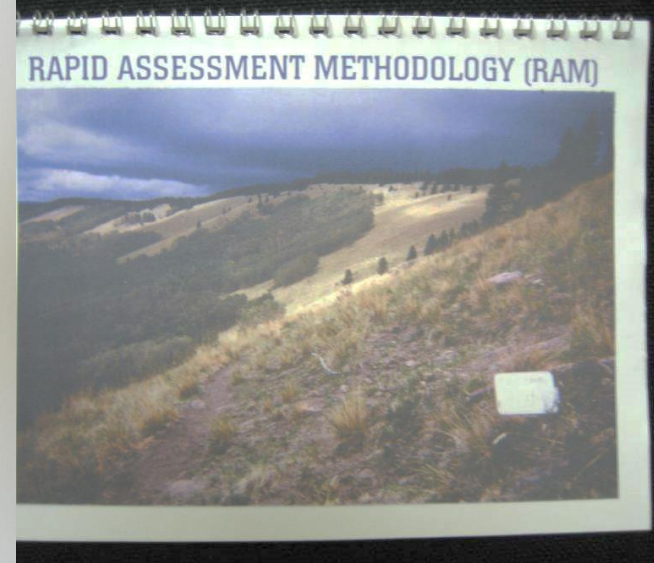
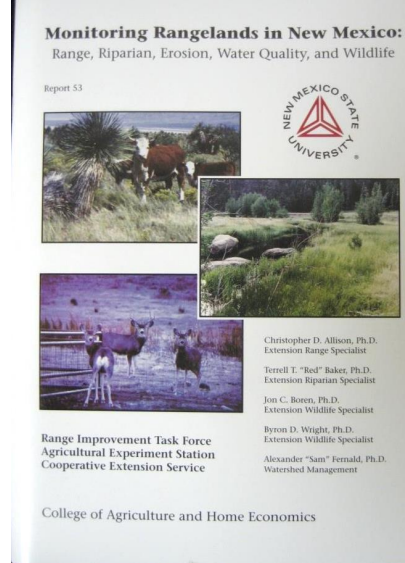
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How?



- Mapping
 - Vegetation
 - Relative production
 - Relative use
 - Issues concerns
 - Improvements
 - Grazing timing

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Why?

- Provide accurate representation of conditions.
- Determine effectiveness of management.
- Document resource & range condition.
- Improve understanding of resources & management
- Required by law and regulation.
- Determine trends.



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Example: Financial Calculation

Pasture: <i>Loco</i>		Utilization: 40%		Management: <i>Private</i>		Animal: Cow/Calf	
	Vegetation		Usable Acres	Months Grazed	Production (lbs/ac)	Stocking Rate (Head- Cattle)	
		<i>Pinyon-Juniper</i>	<i>2500</i>	<i>Jan-Dec</i>	<i>500</i>	<i>68</i>	

Pasture: <i>Loco</i>		Utilization: 40%		Management: <i>Private</i>			Animal: Cow/Calf	
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Single Species Stocking Rate				Multiple Species Stocking Rate			
Species	Head	<i>Water (100,000 gallons)</i>	<i>Income (per acre)</i>	Species	Head	<i>Water (100,000 gallons)</i>	<i>Income (per acre)</i>
<i>Cattle</i>	<i>68</i>	<i>6.0</i>	<i>\$28.56</i>	<i>Cattle</i>	<i>17</i>		<i>\$7.14</i>
<i>Sheep</i>	<i>457</i>	<i>3.33</i>	<i>\$21.64</i>	<i>Sheep</i>	<i>228</i>		<i>\$10.82</i>
<i>Horse</i>	<i>38</i>	<i>2.08</i>	<i>\$5.33</i>	<i>Horse</i>	<i>10</i>		<i>\$1.33</i>
				<i>Total</i>		<i>3.69</i>	<i>\$19.29</i>

Web sites

- **Rapid Assessment Methodology (RAM)-**
<http://aces.nmsu.edu/pubs/taskforce>
- **Monitoring Rangelands in New Mexico-**
<http://aces.nmsu.edu/pubs/taskforce>
- **NMSU Livestock and Range Publications-**
http://aces.nmsu.edu/pubs/_b/
- **Grass Growth and Regrowth for Improved Management-**
<http://www.fsl.orst.edu/forages/projects/regrowth>
- **Web Soil Survey-** <http://www.websoilsurvey.nrcs.usda.gov>

Questions

Answers.....50¢
Thoughtful answers...\$1
Correct answers.....\$2
Dumb looks are free!

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