



# **Grazinglands Recommendations & Understandings**

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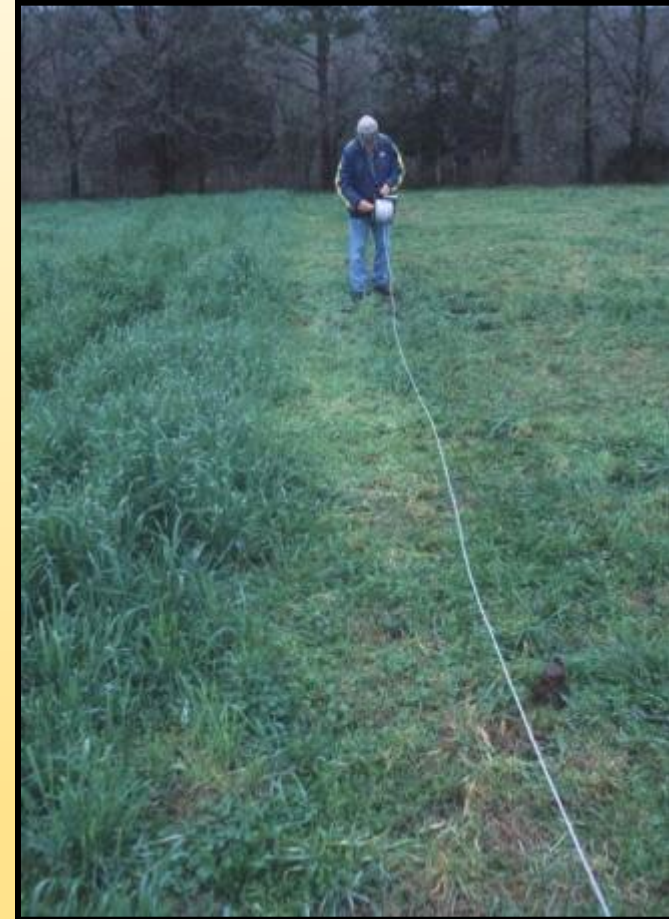


# Some “Cardinal Rules” of Rangeland Management

1. Match the class of animal to the landscape and forage
2. Time grazing to meet your goals
3. Use an appropriate stocking rate
4. Distribute the animals properly in both time and in space

# Why manage grazing?

- Keep plants healthy and productive
- Increase forage production and saves money
- Increase grazing capacity
- Improve use of forage supply throughout the year
- Help control weeds
- Manage woody vegetation



USDA NRCS

# Why manage grazing?



[www.forages.orst.edu](http://www.forages.orst.edu)

- Allows for maximum vigor of key species
- Allows seed production by key species
- Allows seedling establishment of key species
- Meets other management goals (fire hazard, habitat, etc.)

# No matter how many animals... some things are the same

*You need to know:*

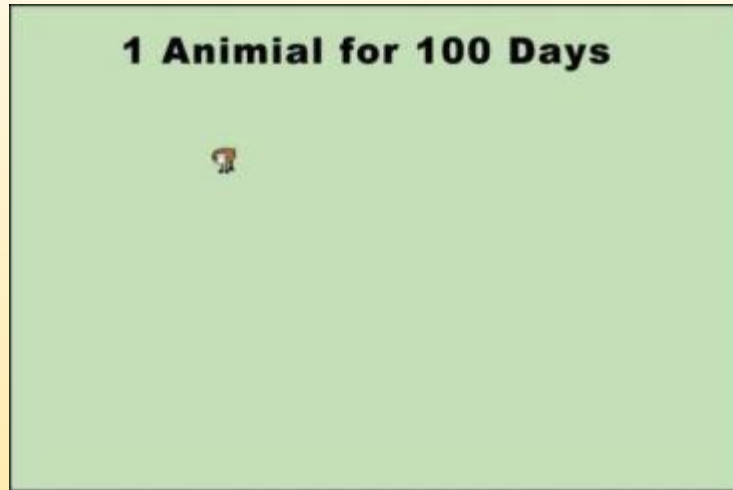
- CARRYING CAPACITY, or the number of animals a pasture/field/unit can accommodate without overgrazing
- STOCKING RATE, or the amount of forage stock are going to eat



UNCE, Reno, Nev.



# Stocking rate vs. stock density



- The stocking rate of both paddocks is identical: 100 animal days per acre
- However, the stock density is much greater in the pasture on the right, so the effect will be much different!



# Grazing Lands Can Get Complex

- Understand the basic ecological principles associated with managing their land – soil, water, air, plants, animals
- Realize they are part of the complex ecosystem & their management influences the ecological changes that occur.

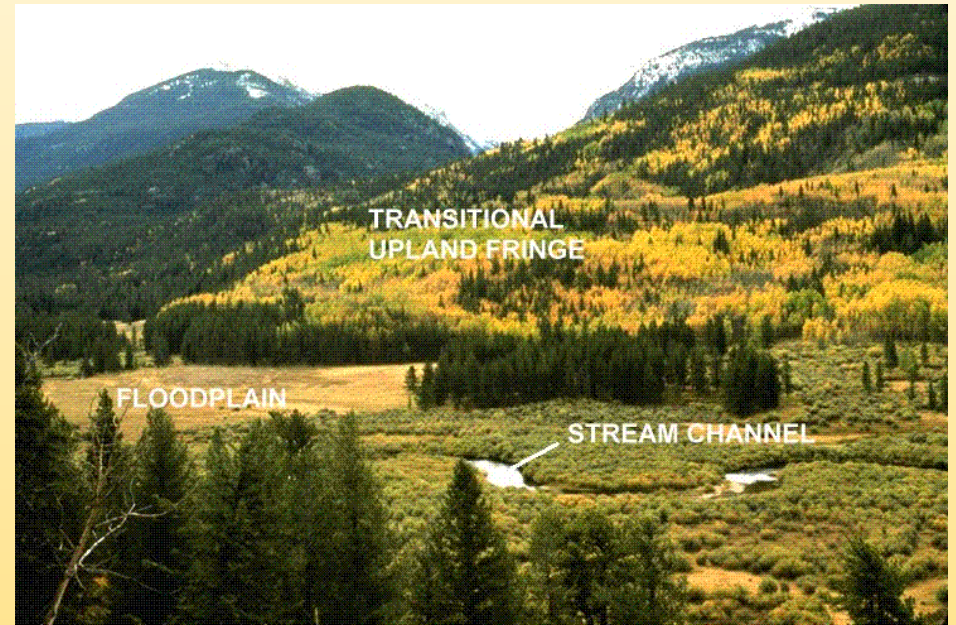


Fig. 1.10b -- The three major components of a stream corridor in different settings.  
In Stream Corridor Restoration: Principles, Processes, and Practices, 10/98.  
By the Federal Interagency Stream Restoration Working Group, 10/98 (15 Federal Agencies of the US)



# Planning on Grazing lands (NRPH)

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- Quotes from NRPH
- “Conservation plans for grazing lands include decisions for manipulating the plant community to manage the soil, water, air, plant and animal resources”
- “Animals are resources, but they are also tools” .....?





# Understand the Ecology of the Site



What can be expected/accomplished from a site treatment?





# Ecological Site Descriptions

- Ecological sites are the basic component of a land-type classification system that describes ecological potential and ecosystem dynamics of land area
- An ecological site is defined as a distinctive kind of land with specific soil and physical characteristics that differ from other kinds of land in its ability to produce a distinctive kind and amount of vegetation and its ability to respond similarly to management actions and natural disturbances

## References

- Ecological site descriptions – EDIT <https://edit.jornada.nmsu.edu/>
- Web soil survey
- Soil Data Mart: <http://soildatamart.nrcs.usda.gov/County.aspx?State=CA>



**Site name:** Shallow Loamy Foothills

*Quercus douglasii* / *Ceanothus cuneatus* / *Avena fatua* - *Bromus hordeaceus*  
(blue oak / buckbrush / wild oat - soft brome)

Site type: Rangeland

Site ID: R015XF004CA

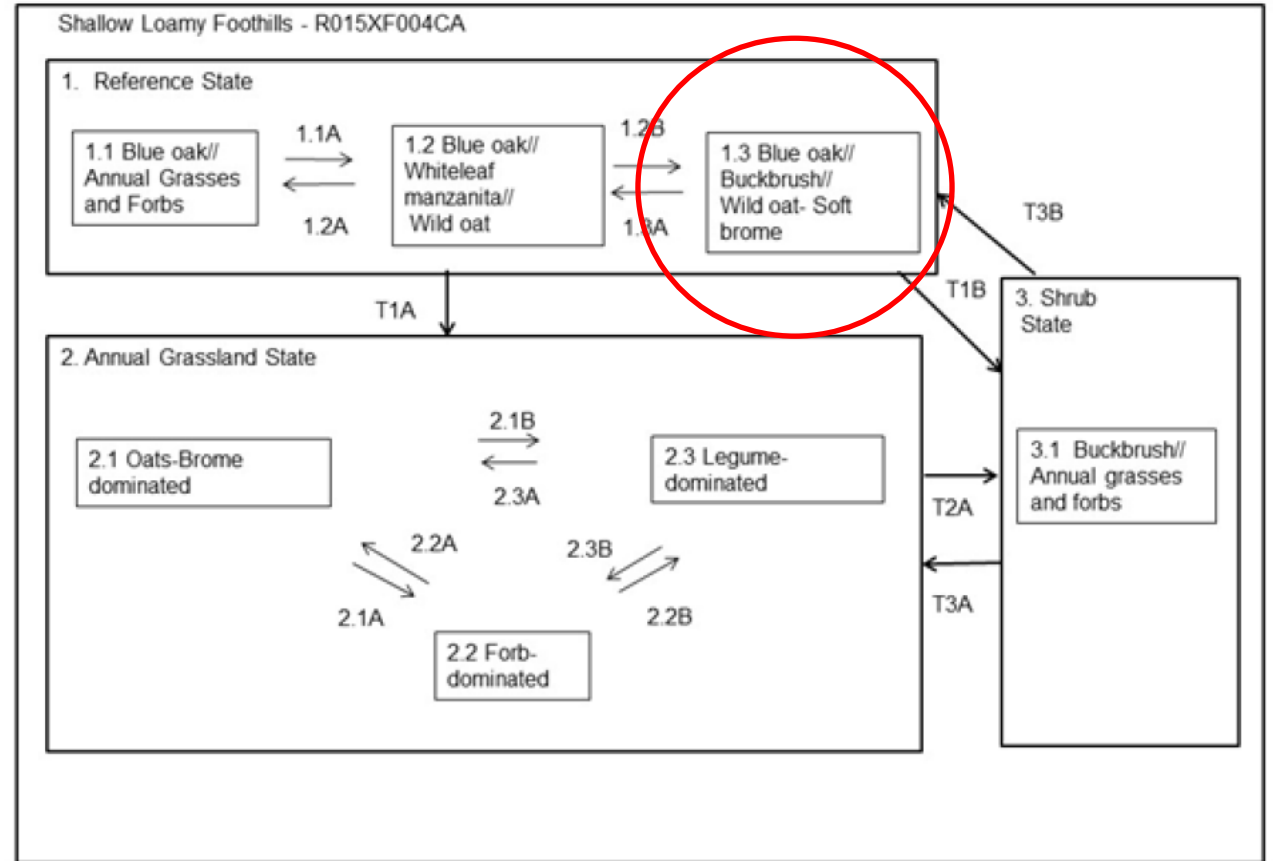
Major land resource area (MLRA): 015-Central California Coast Range



Location Map R015XF004CA - Shallow Loamy Foothills

# ESD Example

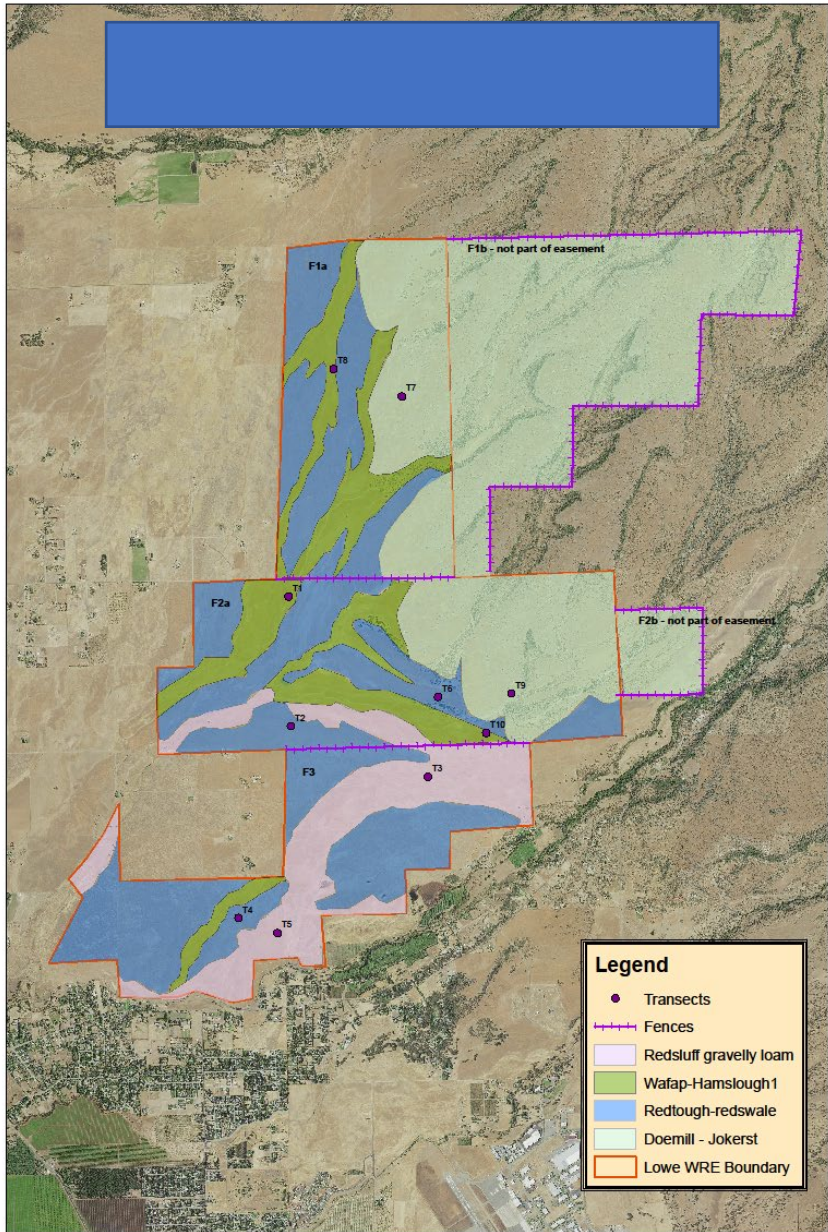
## State-and-Transition Diagram



### Blue oak//Buckbrush//Wild oat-Soft brome Plant Species Composition

Forb				Annual Production (pounds per acre)			
Group	Group name	Common name	Symbol	Scientific name	Low	High	
1	-Forbs				212	347	
		Douglas' fiddleneck	AMDO	<a href="#">Amsinckia douglasiana</a>	0	91	0 1
		American wild carrot	DAPU3	<a href="#">Daucus pusillus</a>	0	102	0 3
		bluedicks	DICA14	<a href="#">Dichelostemma capitatum</a>	0	91	0 2
		longbeak stork's bill	ERBO	<a href="#">Erodium botrys</a>	0	39	0 2
		redstem stork's bill	ERIC6	<a href="#">Erodium cicutarium</a>	0	94	0 1
		whiskerbrush	LECI18	<a href="#">Leptosiphon ciliatus</a>	0	6	0 1
		Hoover's desertparsley	LOTU	<a href="#">Lomatium tuberosum</a>	0	32	0 2
		trefoil	LOTUS	<a href="#">Lotus</a>	0	32	0 2
		miniature lupine	LUBI	<a href="#">Lupinus bicolor</a>	0	58	0 1
		pincushionplant	NAVAR	<a href="#">Navarretia</a>	0	42	1 2
		dotseed plantain	PLER3	<a href="#">Plantago erecta</a>	0	13	0 1
		clover	TRIFO	<a href="#">Trifolium</a>	0	15	1 2
Grass/Grasslike				Annual Production (pounds per acre)			
Group	Group name	Common name	Symbol	Scientific name	Low	High	
2	-Grasses				403	657	
		wild oat	AVFA	<a href="#">Avena fatua</a>	335	551	10 15
		soft brome	BRHO2	<a href="#">Bromus hordeaceus</a>	32	53	1 5
		red brome	BRRU2	<a href="#">Bromus rubens</a>	36	53	1 2
Shrub/Vine				Annual Production (pounds per acre)			
Group	Group name	Common name	Symbol	Scientific name	Low	High	
3	-Shrubs				81	109	
		whiteleaf manzanita	ARMA	<a href="#">Arctostaphylos manzanita</a>	0	7	0 1
		buckbrush	CECU	<a href="#">Ceanothus cuneatus</a>	81	102	1 5
Tree				Annual Production (pounds per acre)			
Group	Group name	Common name	Symbol	Scientific name	Low	High	
4	-Trees				52	180	
		California foothill pine	PISA2	<a href="#">Pinus sabiniana</a>	0	94	0 1
		blue oak	QUDO	<a href="#">Quercus douglasii</a>	52	180	15 35





**Legend**

- Transects
- Fences
- Redstluff gravelly loam
- Wafap-Hamslough1
- Redtough-redswale
- Doemill - Jokerst
- Lowe WRE Boundary

View Soil Information By Use: All Uses Printable Version Add to Shopping Cart

Intro to Soils Suitabilities and Limitations for Use Soil Properties and Qualities **Ecological Site Assessment** Soil Reports

Search Map - Dominant Ecological Site - Rangeland

Ecological Sites Scale (not to scale)

Open All Close All

**All Ecological Sites** View All Ecological Sites Info

**View Options**

Dominant Ecological Site Map

Ecological Sites by Map Unit Component Table

**Basic Options**

Ecological Site Type: Rangeland

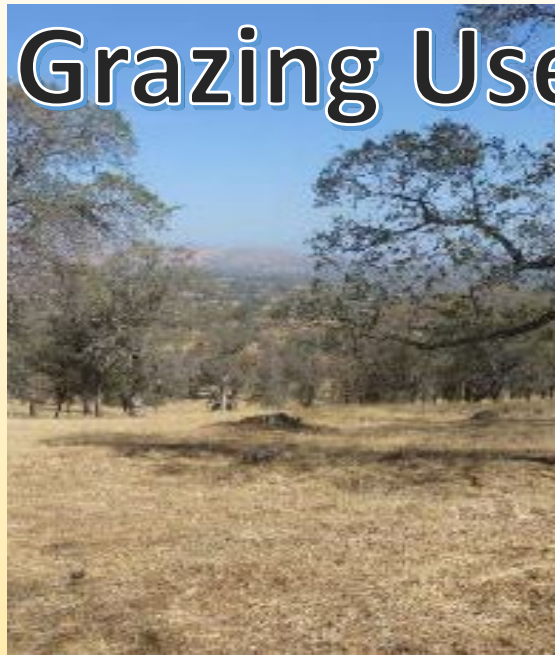
**View All Ecological Sites Info**

R015XE020CA	— Fine Loamy 9-13
R015XE026CA	— Loamy Slopes 9-12" p.z.
R015XE077CA	— Shallow Loamy Hills 10-15" P.Z. Gravelly
R015XE084CA	— FINE LOAMY BOTTOM
R015XE086CA	— CLAYEY BOTTOM
R015XF004CA	— Shallow Loamy Foothills
R015XF005CA	— Steep Loamy Foothills

Table - Ecological Sites by Map Unit Component - Rangeland



# Understand Grazing Use and Effects





# What Infrastructure Is Needed?

- Permanent
- Portable
- How much

Will it meet the needs??



# Will there be post treatment needed?



Brush  
Management

Seeding





# Purpose of Grazing Management – NRCS Perspective

- Improve the health and vigor of selected plant(s) and maintain a stable and desired plant community
- Provide or maintain food, cover and shelter for animals of concern
- Improve or maintain animal health and productivity
- Improve specific resource conditions such as water quality, plant regeneration and soil stability



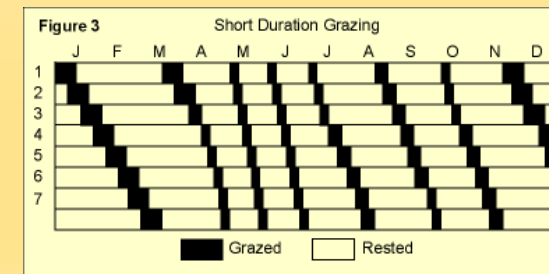
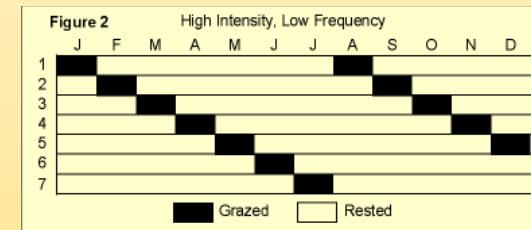
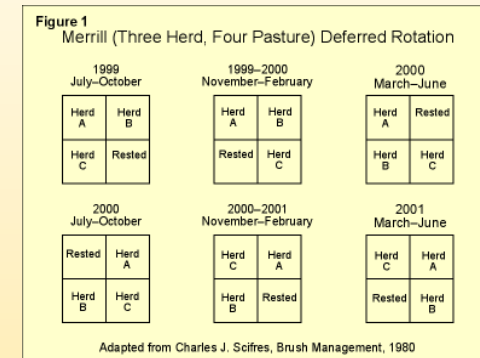
# Components of a Grazing Plan

- Season(s) of use
- Factors for determining timing of grazing
  - turn out dates, e.g. wildlife
- Monitoring - method and frequency
- Select a grazing system!!!



# Grazing Systems

- **Deferred Rotation** – grazing longer then rest, moderate stocking rate
- **Rest Rotation** – rest longer then grazed, moderate stocking rate
- **High intensity – Low Frequency** – high stocking rate
- **Short Duration Grazing** – high stocking rate, short rest and short grazing periods
- **Continuous Grazing** – one unit





# When is Grazing Management the Best Tool?

- Infrastructure is adequate to facilitate management
- Goals are likely to be reached through modifying management
- Application of approach accommodates (if not requires) flexibility
- Proposed approach is supported by logical economics

# Economic Perspective

## Biology and Management of Noxious Rangeland Weeds

Table 4. Summary data calculated for the specified production and economic parameters for a "No Treatment" management strategy.

Year(s) Treated	Number Infested Acres	Average lbs of Noxious Weed	Lbs of Noxious Weed Utilized	Total lbs Herbage Utilized	Acres per AUM	Change in Total Herbage Utilized (lbs)	Present Value of AUM Loss
0	250	150	30	450	1.47	0	\$0.00
1	275	175	35	445	1.48	5	\$0.05
2	303	204	41	439	1.50	11	\$0.11
3	333	238	48	432	1.53	18	\$0.18
4	366	277	55	425	1.55	25	\$0.24
5	403	290	58	422	1.56	28	\$0.26
6	443	297	59	421	1.57	29	\$0.26
7	487	306	61	419	1.58	31	\$0.26
8	536	316	63	417	1.58	33	\$0.26
9	589	328	66	414	1.59	36	\$0.27
10	648	343	69	411	1.60	39	\$0.28
11	713	360	72	408	1.62	42	\$0.29
12	785	381	76	404	1.63	46	\$0.31
13	863	405	81	399	1.65	51	\$0.32
14	949	434	87	393	1.68	57	\$0.34
15	1000	464	93	387	1.70	63	\$0.36
16	1000	493	99	381	1.73	69	\$0.38
17	1000	526	105	375	1.76	75	\$0.40
18	1000	564	113	367	1.80	83	\$0.42
19	1000	605	121	359	1.84	91	\$0.44
20	1000	646	129	351	1.88	99	\$0.46
Per Acre Present Value of AUMs Lost to Weeds (in current dollars)							\$5.88
Total Value Lost Given the Size of the Management Unit (in current dollars)						\$5,879.33	

Summary of information calculated assuming no management strategy is implemented. Values are average per acre prorated over the entire management unit.



# Economic Perspective

**Table 5. Summary information calculated given the parameters specified in Tables 1 and 2, with eradication as the management strategy.**

Year(s) Treated	Year	Number Infested Acres	Average lbs of Noxious Weed	Lbs of Noxious Weed Utilized	Total lbs Herbage Utilized	Acres per AUM	Present Value of After Tax Treatment Costs	Present Value of Added AUMs With Treatment	Cumulative Costs of Treatment in Present Value	Cumulative Benefit With Treatment in Present Values
Treated	0	250	150.00	30.00	360	1.83	(\$2.53)	(\$0.99)	\$2.53	\$-0.99
	1	50	2.50	0.50	460	1.43	\$0.00	\$0.16	\$2.53	\$-0.83
	2	0	0.00	0.00	476	1.39	\$0.00	\$0.36	\$2.53	\$-0.47
Treated	3	150	15.00	3.00	475	1.39	(\$1.32)	\$0.41	\$3.85	\$-0.06
	4	0	0.00	0.00	480	1.38	\$0.00	\$0.50	\$3.85	\$0.44
	5	0	0.00	0.00	480	1.38	\$0.00	\$0.51	\$3.85	\$0.95
Treated	6	75	7.50	1.50	475	1.39	(\$0.58)	\$0.45	\$4.43	\$1.40
	7	0	0.00	0.00	480	1.38	\$0.00	\$0.49	\$4.43	\$1.89
	8	0	0.00	0.00	480	1.38	\$0.00	\$0.48	\$4.43	\$2.37
Treated	9	40	4.00	0.80	475	1.39	(\$0.27)	\$0.44	\$4.70	\$2.81
	10	0	0.00	0.00	480	1.38	\$0.00	\$0.48	\$4.70	\$3.28
	11	0	0.00	0.00	480	1.38	\$0.00	\$0.48	\$4.70	\$3.76
Treated	12	15	0.75	0.15	478	1.38	(\$0.09)	\$0.47	\$4.78	\$4.23
	13	0	0.00	0.00	480	1.38	\$0.00	\$0.49	\$4.78	\$4.72
	14	0	0.00	0.00	480	1.38	\$0.00	\$0.50	\$4.78	\$5.22
Treated	15	15	0.75	0.15	478	1.38	(\$0.08)	\$0.50	\$4.86	\$5.72
	16	0	0.00	0.00	480	1.38	\$0.00	\$0.52	\$4.86	\$6.23
	17	0	0.00	0.00	480	1.38	\$0.00	\$0.53	\$4.86	\$6.76
Treated	18	15	0.75	0.15	478	1.38	(\$0.07)	\$0.53	\$4.93	\$7.30
	19	0	0.00	0.00	480	1.38	\$0.00	\$0.56	\$4.93	\$7.85
	20	0	0.00	0.00	480	1.38	\$0.00	\$0.57	\$4.93	\$8.42

After Tax Treatment Costs Per Acre of Management Unit (Current Dollars) (\$4.93)

After Tax Benefit of Treatment (Current Dollars/Acre)

\$8.42

# Influences on Plan Effectiveness

- Goals for Management
- Ecological Function (existing resilience of treated landscape)
- Site Constraints (operational logistics)
- Economic Controls (rate of application and/or degree of applicability)
- Social Constraints (legal requirements, local perception/political implications)
- Continuity in management



# Grazing Management is...(regardless of purpose)

...only as important as the gate operator or manager believes it is.

...neither the cause, nor the cure for all issues we might identify on the landscape.

...only as influential as the site has potential to respond.