

Livestock Grazing Systems in the Great Basin

Perennial and Annual Forage
Bases in the Annual Forage
Calendar

A landscape photograph showing rolling hills in the background under a clear blue sky. In the foreground, a herd of dark-colored cattle is grazing in a field of dry, yellowish grass. The text is overlaid on the image.

COULD ANYONE IN GOOD
CONSCIENCE ADVOCATE
MANAGEMENT *FOR* CHEATGRASS ?

HOWEVER

WE *MUST* MANAGE CHEATGRASS
IF WE DO NOT WANT FURTHER
DEGRADATION AND INVASION BY
EVEN WORSE INVASIVE SPECIES!

Types of grazing systems used:

- **Deferred Rotation**
- **Rest Rotation**
- *Combination of the two*
- **High Frequency-Short Duration**
- *Seasonal Ranges*
- *(Year-long allotments)*

Maybe it's time to also consider non-growing season parameters when designing objectives and the grazing systems that will achieve them.

- Fuels management
- Litter control
- Seed bank management
- Competition reduction between annual and perennial grasses
- Control of other invasive plant species

How do we combine the benefits of rest and deferment for perennial grasses with what is known about annual forage grasses?

Guidelines for Residual Dry Matter on Coastal and Foothill Rangelands in California

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Table 1. Minimum RDM standards for dry annual grassland in pounds per acre (dry weight)

Woody cover (%)	RDM standard for percent slope (lb/acre)			
	0–10	10–20	20–40	>40
0–25	300	400	500	600
25–50	300	400	500	600
50–75	NA	NA	NA	NA
75–100	NA	NA	NA	NA

Note: Metric conversion: 1 lb/acre = 1.12 kg/ha.

Table 2. Minimum RDM standards for annual grassland/hardwood rangeland in pounds per acre (dry weight)

Woody cover (%)	RDM standard for percent slope (lb/acre)			
	0–10	10–20	20–40	>40
0–25	500	600	700	800
25–50	400	500	600	700
50–75	200	300	400	500
75–100	100	200	250	300

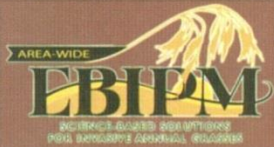
Note: Metric conversion: 1 lb/acre = 1.12 kg/ha.

Table 3. Minimum RDM standards for coastal prairie in pounds per acre (dry weight)

Woody cover (%)	RDM standard for percent slope (lb/acre)			
	0–10	10–20	20–40	>40
0–25	1,200	1,500	1,800	2,100
25–50	800	1,000	1,200	1,400
50–75	400	500	600	700
75–100	200	250	300	350

Note: Metric conversion: 1 lb/acre = 1.12 kg/ha.

Another Approach



Grazing Invasive Annual Grasses: The Green and Brown Guide



Grazing Invasive Annual Grasses: The Green and Brown Guide

Brenda Smith, Roger Sheley, and Tony Svejcar



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design by *Ryan Jay Steineckert*

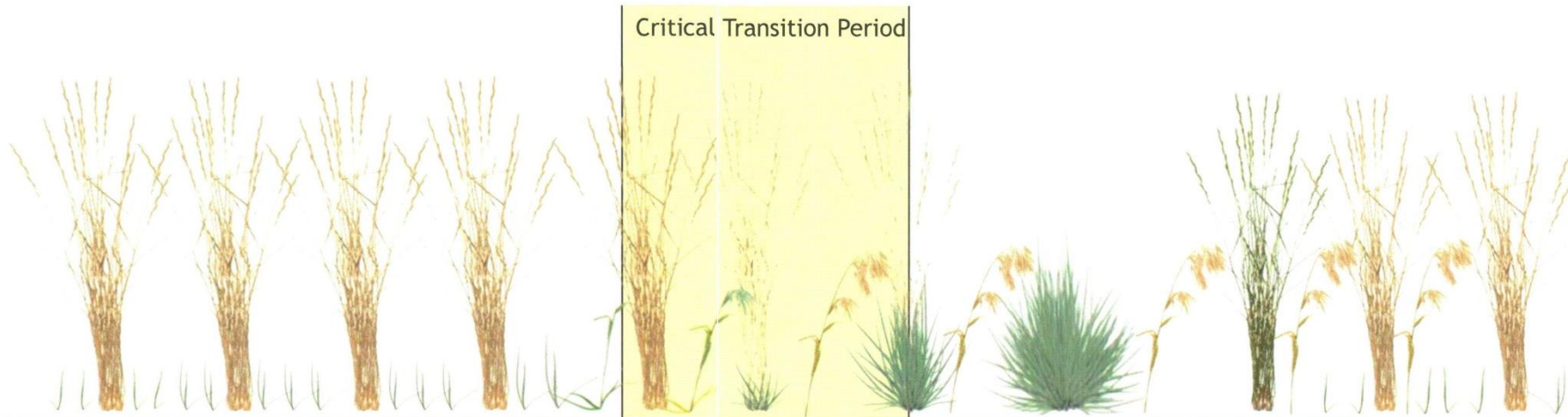
A 2012 Product of the
AREA-WIDE PROJECT

“GREEN AND BROWN”

GRAZING STRATEGY FOR INVASIVE ANNUAL GRASSES

Use this chart to help you manage invasive annual grasses such as medusahead and cheatgrass.

In the table below, grazing periods are imposed based on the actual plant growth stage for both desired perennial grasses and annual grasses. The calendar months are only to be used as a general reference, **always graze by plant growth stage paying close attention to early green-up of perennials**. This also illustrates the critical transition period for removing livestock.



Grazing Period	Yes	Yes	Yes	Yes	Yes	Maybe	No	No	No	Maybe	Maybe	Maybe	Yes	Yes	Yes
Perennial Grasses	Senescence		Dormancy				Growth initiation	Leaf growth	Boot stage & seed head emergence	Flowering & seed development			Seed hardening & scatter & senescence		
Annual Grasses	Germination		Growth initiation			Leaf growth	Boot stage	Flowering & seed development	Seed hardening & scatter		Death	Germination & growth initiation			
Month	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec

Multiple Use

Federal Land Policy and Management Act (FLPMA) of 1976



Managing public lands under principles of Multiple Use and Sustained Yield

***What are the objectives for the site?
Planning documents?***

- 1) Control the annual grass?
- 2) Manage the annual grass?
- 3) Pre-treatment for rehabilitation/restoration?
- 4) Fuels management?
- 5) Shift dominance from annual to perennial?
- 6) All of the above?

**THE QUESTION FOR 21ST CENTURY RANGE
SCIENTISTS, MANAGERS, AND ANY CITIZEN
CONCERNED WITH ENVIRONMENTAL QUALITY, IS
HOW WE MANAGE CHEATGRASS-DOMINATED
RANGES TO MAINTAIN CHEATGRASS DOMINANCE**

IF

**SOCIETY IS NOT WILLING TO SPEND THE
NECESSARY FUNDS FOR RESEARCH AND
DEVELOPMENT AND IMPLEMENTATION TO
CONVERT THE RANGES BACK TO PERENNIAL
GRASSES CAPABLE OF SUPPRESSING EXOTIC
ANNUALS.**

**JAMES A. YOUNG, INVASIVE WEED SPECIALIST – USDA ARS
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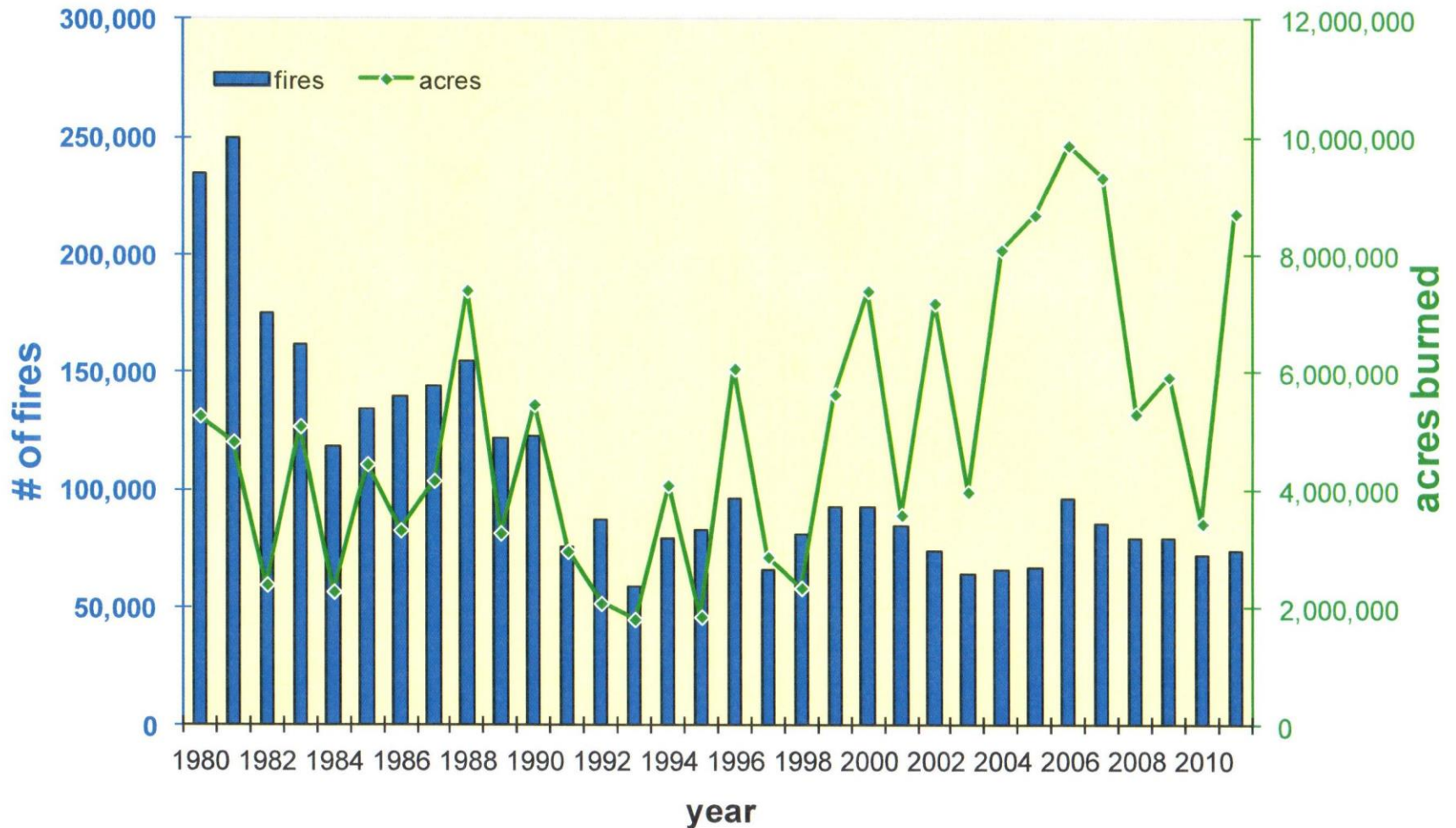
TNR

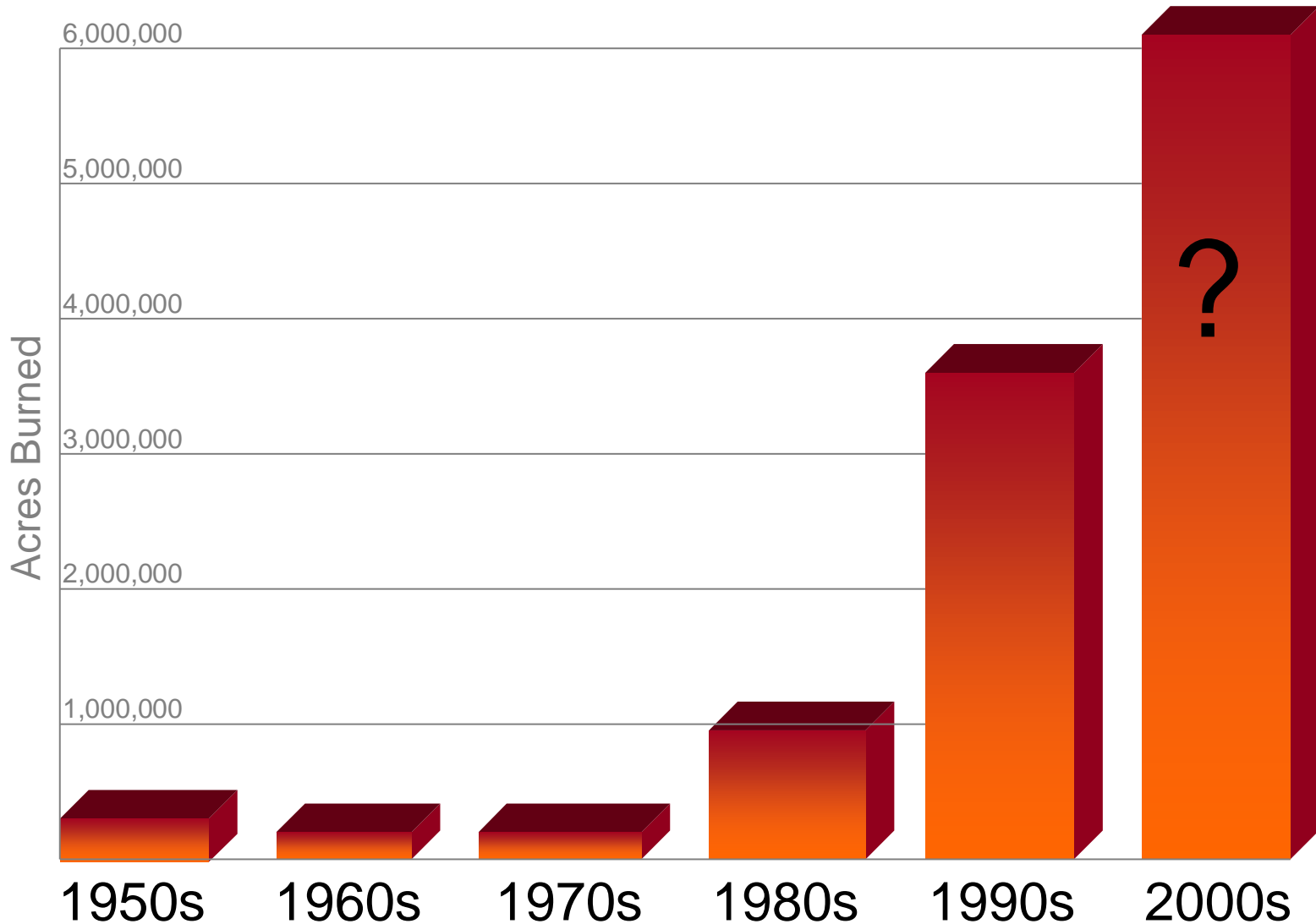
Provisions for temporary non-renewable permits in order to graze cheatgrass as a fuels management tool must be included in NEPA planning documents.

There must be financial incentive for livestock producers to graze annual grass ranges or nothing will change with respect to grazing rotation and use.



Wildland Fires (1980-2012)





Nevada Wildland Acres Burned by Decade

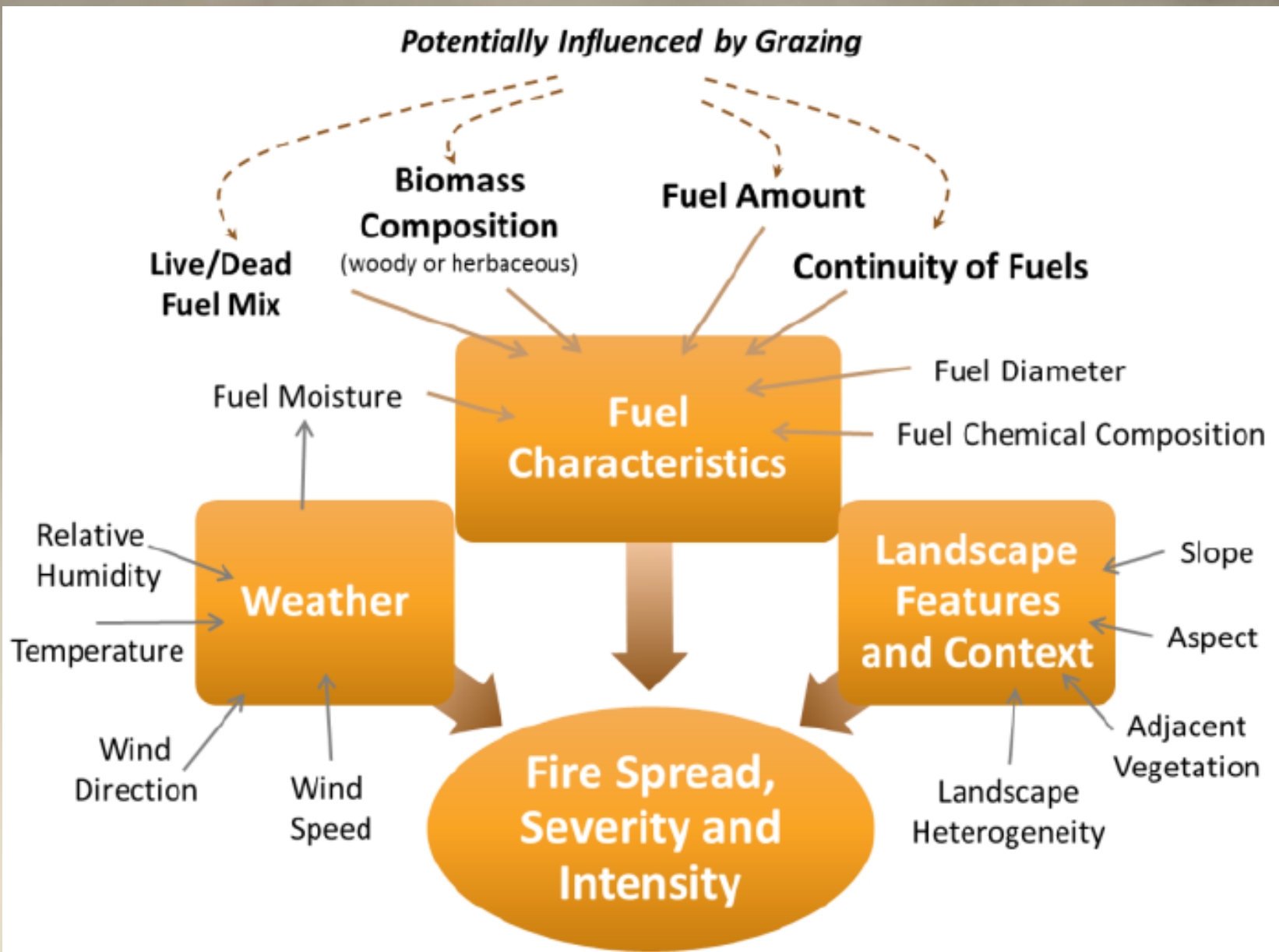
***1999-2009: In Nevada, 7,005,296 acres
burned in wildland fires***

Current Threats



Catastrophic range fires and invasion of weeds
vs.

Grazing to control fuel load and re-vegetation
with fire resistance introduced grasses such as
crested wheatgrass



From Strand et al. 2014

Murphy Wildland Fire Complex - 2007

- ❖ Grazing reduced flame length, rate of spread, and fire intensity on sagebrush steppe rangelands in the Great Basin (Launchbaugh et al. 2008)

- » Moderate fire conditions



From Launchbaugh et al. 2008

NV Livestock

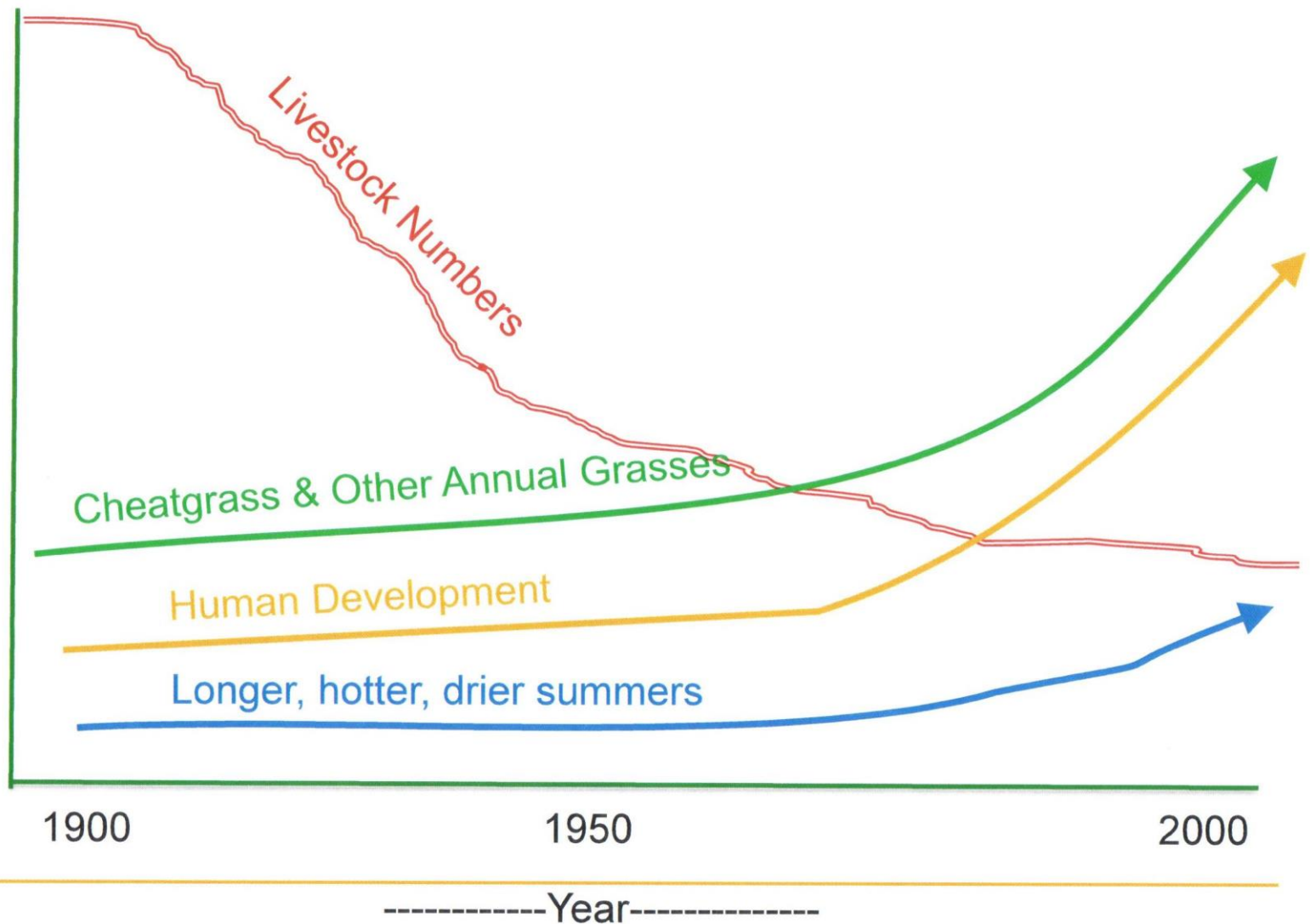
Nevada Data - Cattle & Calves			
Cattle Inventory - January 1			
<u>Year ↑</u>	<u>Commodity</u>	<u>Period</u>	<u>Inventory</u>
2000	Cattle & Calves - All	January 1	520 thousand head
2001	Cattle & Calves - All	January 1	520 thousand head
2002	Cattle & Calves - All	January 1	500 thousand head
2003	Cattle & Calves - All	January 1	510 thousand head
2004	Cattle & Calves - All	January 1	510 thousand head
2005	Cattle & Calves - All	January 1	500 thousand head
2006	Cattle & Calves - All	January 1	500 thousand head
2007	Cattle & Calves - All	January 1	480 thousand head
2008	Cattle & Calves - All	January 1	450 thousand head
2009	Cattle & Calves - All	January 1	450 thousand head

Nevada Data - Sheep & Lambs - January Inventory : Total Sheep, Breeding & Lamb Crop	
<u>Year ↑</u>	<u>Total Sheep & Lambs</u>
2000	95 thousand head
2001	95 thousand head
2002	90 thousand head
2003	80 thousand head
2004	75 thousand head
2005	70 thousand head
2006	75 thousand head
2007	75 thousand head
2008	70 thousand head
2009	67 thousand head

1867 – 36 thousand head
1982 – 700 thousand head

1920 Nevada 1,330 thousand head

Historic Patters



Gund Ranch Fall 2006



Ungrazed, Spring 2009



Grazed, Spring 2009



**Roaring Springs Ranch
Fall 2012**







Medusahead site April 2013



Medusahead site July 2013



Medusahead site Aug 2015



Upton Mtn site Oct 2012

DATE 10-18-12
NO. CG #2
R.A. 3-Ring
ALLOT. Upton Mtn.
PAST. Upton

Upton Mtn site Aug 2015



Current research is indicating that in areas where cheatgrass is already entrenched, the amount of carryover aboveground biomass will dictate the dominance of cheatgrass.

Trowbridge, W., Albright, T., Ferguson, S., Li, J., Perryman, B. L., Nowak, R. S. 2013. Explaining patterns of species dominance in the shrub steppe systems of the Junggar Basin (China) and Great Basin (USA). Journal of Arid Lands, 5:415-427. doi: 10.1007/s40333-013-0174-y jal.xjegi.com; www.springer.com/40333

Schmelzer, L., B. Perryman, B. Bruce, B. Schultz, K. McAdoo, G. McCuin, S. Swanson, J. Wilker, and K. Conley. 2014. Case Study: Reducing cheatgrass (Bromus tectorum L.) fuel loads using fall cattle grazing. Professional Animal Scientist, 30:270-278.











Questions?

