Greenstrips- A Tool to Reduce Wildfire Impacts

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The Cheatgrass-Wildfire Cycle

Fuels Management is the manipulation of plants and litter to reduce the frequency, rate of spread, and size of wildland fire (USDI 1998).

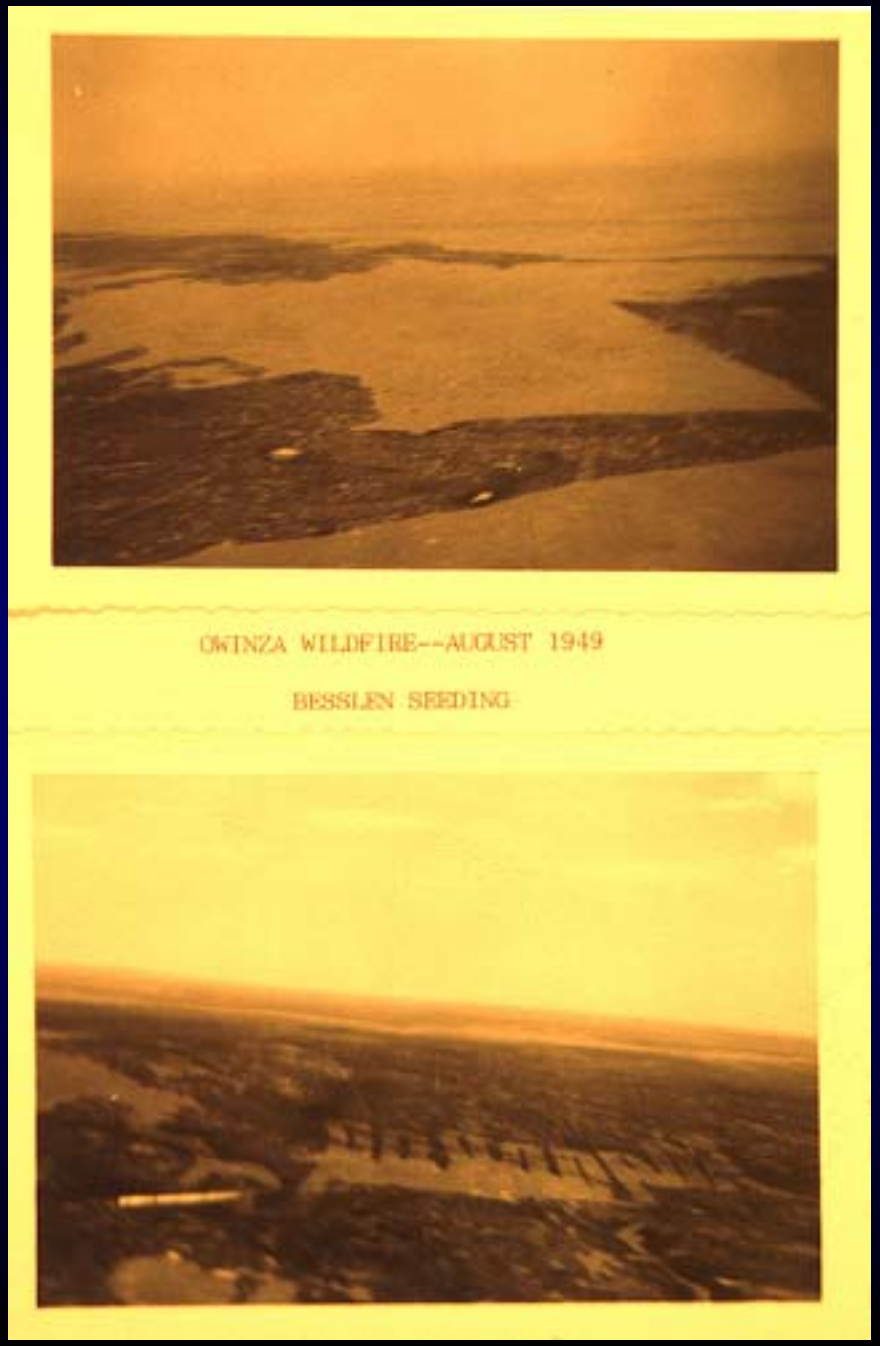
Greenstrips are a type of fuels management treatment utilizing strips of fire resistant vegetation established at strategic locations to:

- **Slow or stop wildland fires**
- **Reduce wildland fire starts along transportation routes**
- **Minimize backfire risks during fire suppression**
- **Protect shrub stands from unwanted fire**
- **Reduce wildfire entry into the urban/wildland interface**

Greenstripping

Platt & Jackson (1946),
The Cheatgrass Problem in Oregon

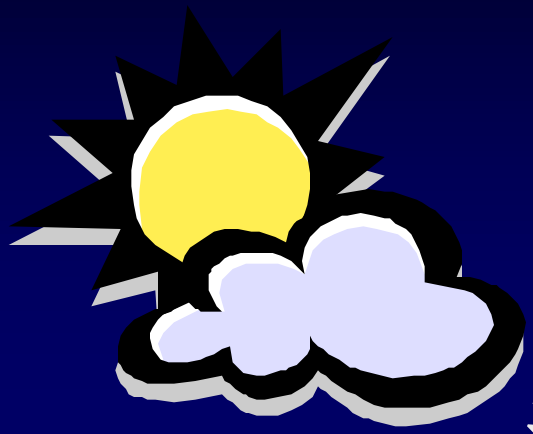
"That cheatgrass areas be broken at suitable intervals with strips of fire-resistant vegetation such as crested wheatgrass"



1949 Owinza Fire, BLM- Shoshone Idaho

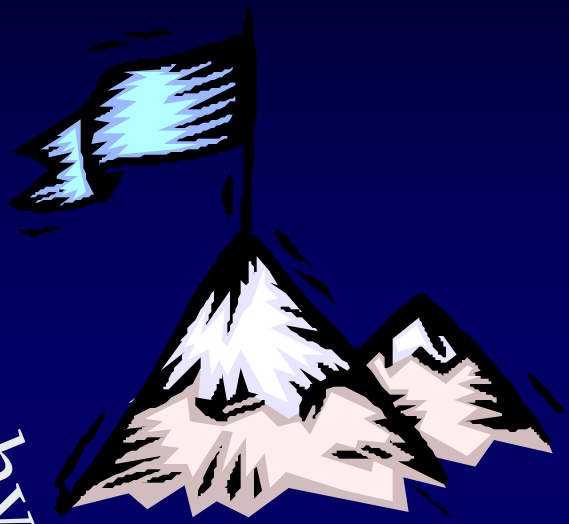
"The reseeded area on Owinza Butte, which has a good stand of crested wheat, shows without doubt the value of this type of planting in fire control work."

Fire Triangle

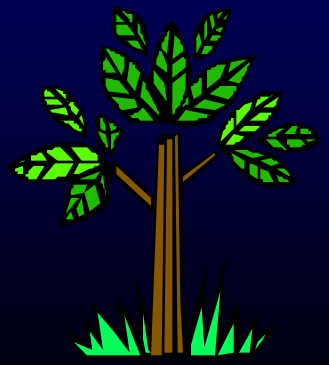


Weather

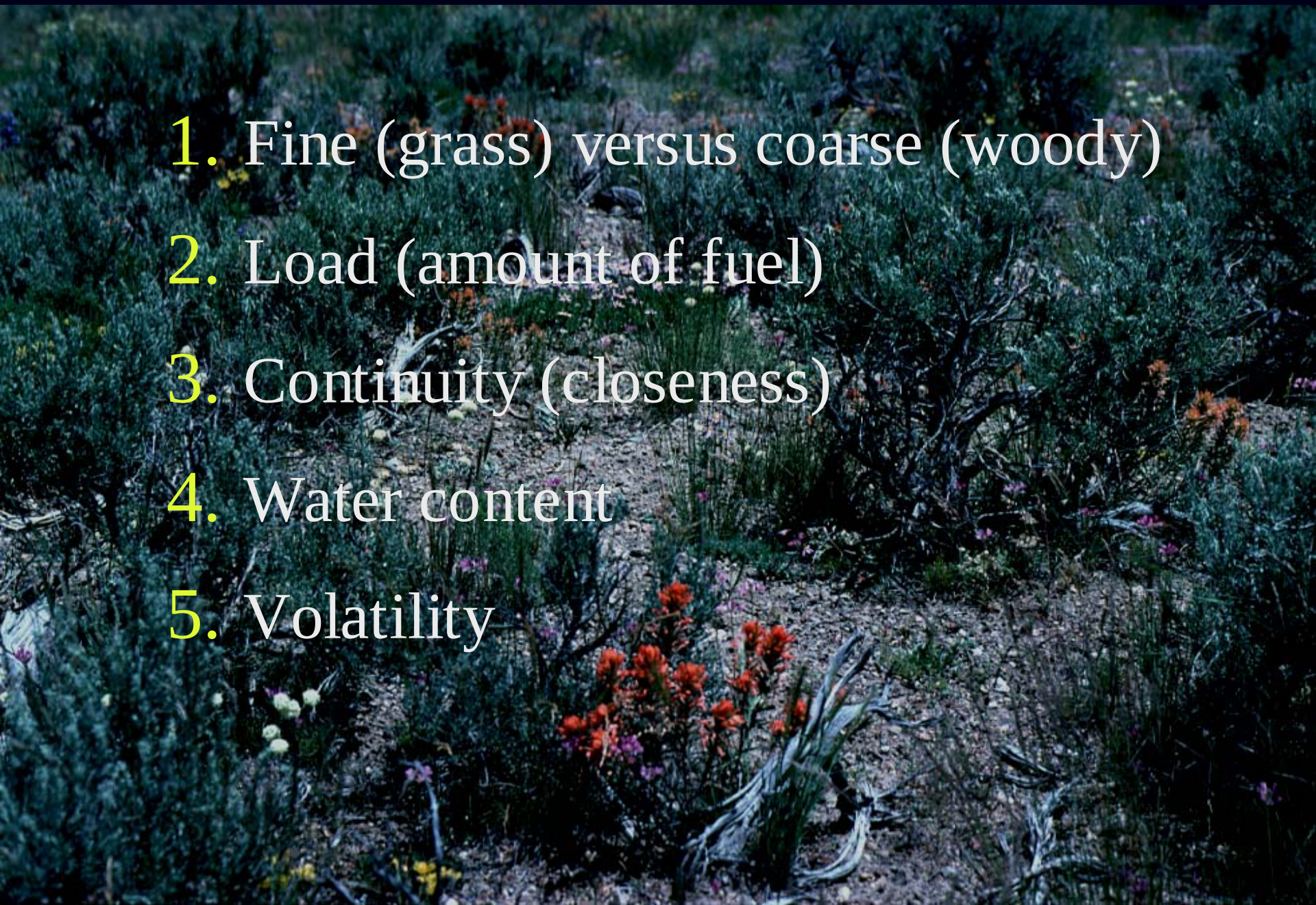
Topography



Fuel



Wildland Fuel Characteristics

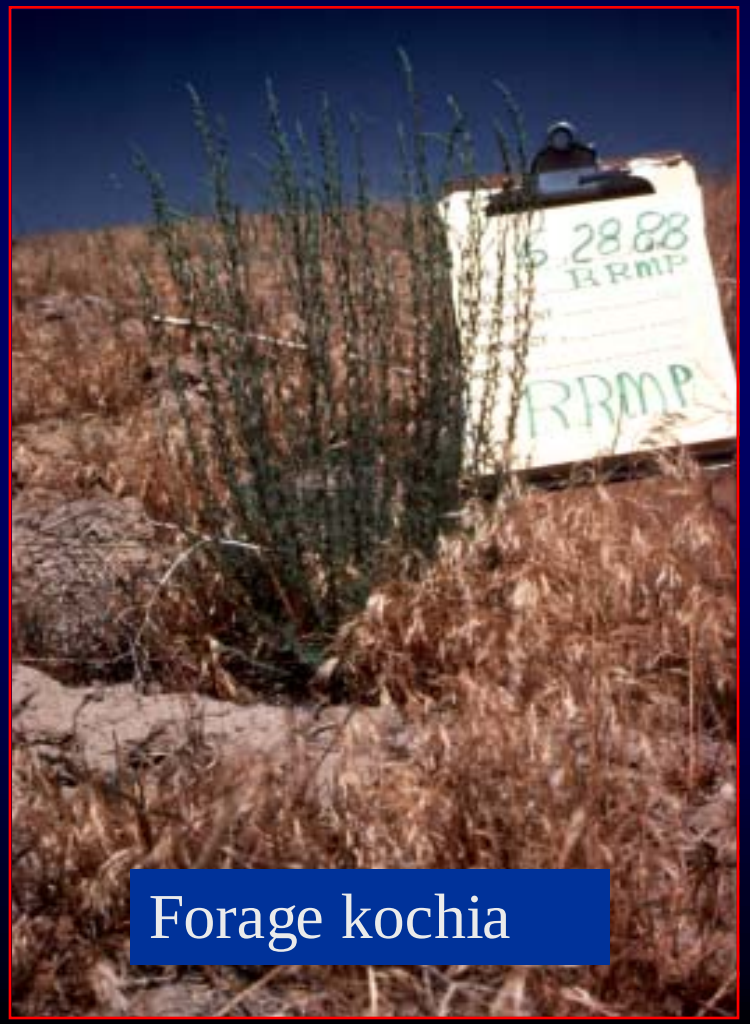


1. Fine (grass) versus coarse (woody)
2. Load (amount of fuel)
3. Continuity (closeness)
4. Water content
5. Volatility

1. Fuels Management- Reduce Fuel Continuity

2. Fuels Management- Increase the proportion of plants with a higher moisture content

Crested wheatgrass



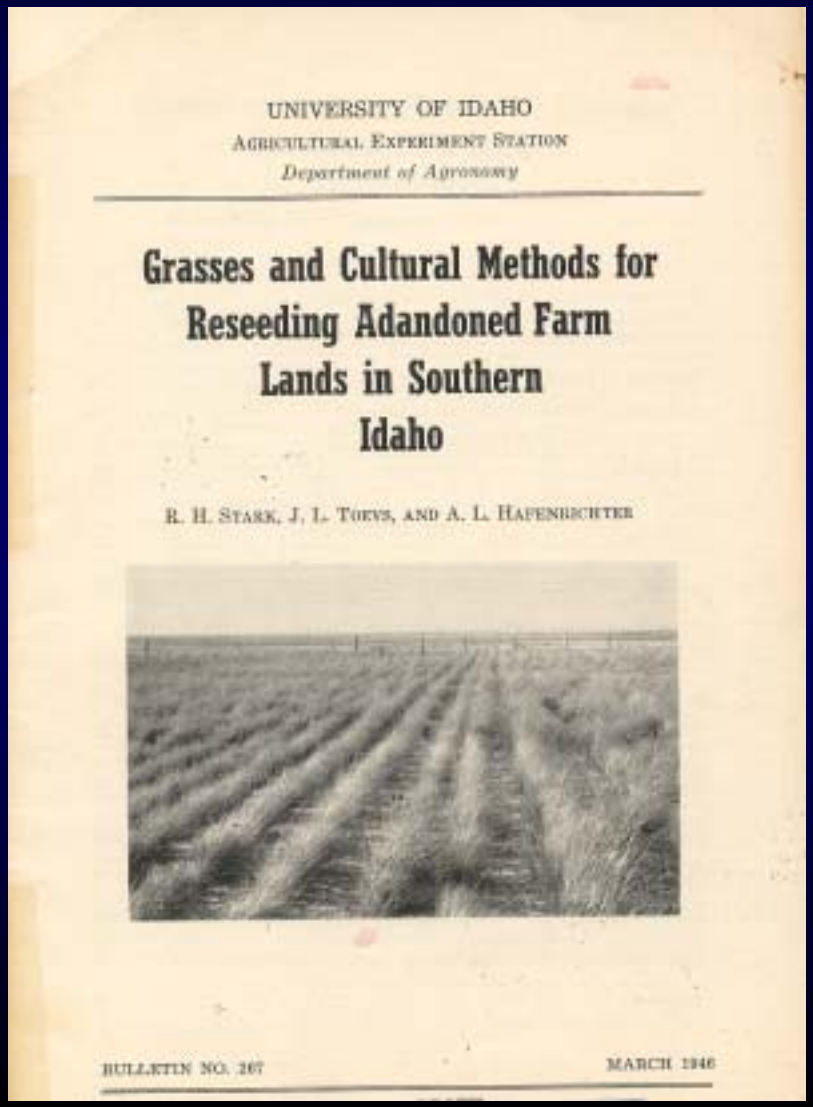
Forage kochia

3. Fuels Management- Reduce fuel loads and/or fuel volatility

Greenstrips

1. Cheatgrass Control
2. Plant Materials
3. Placement and Effectiveness
4. Summary

Cheatgrass Control for Greenstrips



UNIVERSITY OF IDAHO
AGRICULTURAL EXPERIMENT STATION
Department of Agronomy

Grasses and Cultural Methods for Reseeding Adandoned Farm Lands in Southern Idaho

R. H. STARK, J. L. TOEVS, AND A. L. HAFENRICHTER

BULLETIN NO. 267 MARCH 1946

Well established that cheatgrass must be controlled prior to implementing any kind of a seeding project.

Cheatgrass Control in Preparation for Seeding a Greenstrip

1. Biological- Livestock
2. Mechanical
3. Prescribed Fire
4. Herbicides
5. Combinations of Previous Treatments

Biological Control- Livestock

- Season of use
- Intensity of use
- Distribution
- Duration of use
- Class of livestock

To be effective in reducing cheatgrass you must:

Repeat appropriate grazing practices over a multi-year period under different climatic conditions over a diverse landscape.

Biological Control- Livestock Considerations

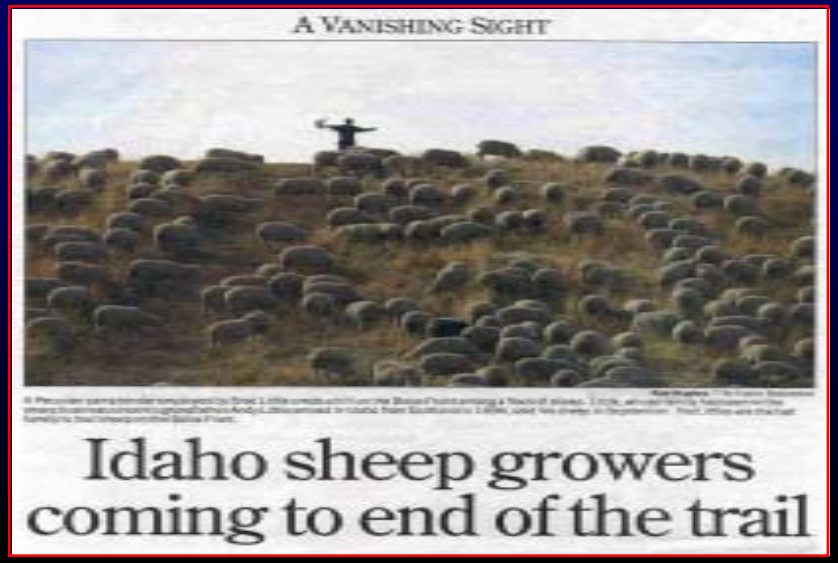
Variable Annual Production of Cheatgrass

Hull and Pehanec (1947):
Cheatgrass production in

Wet year--3,461 lbs/ac

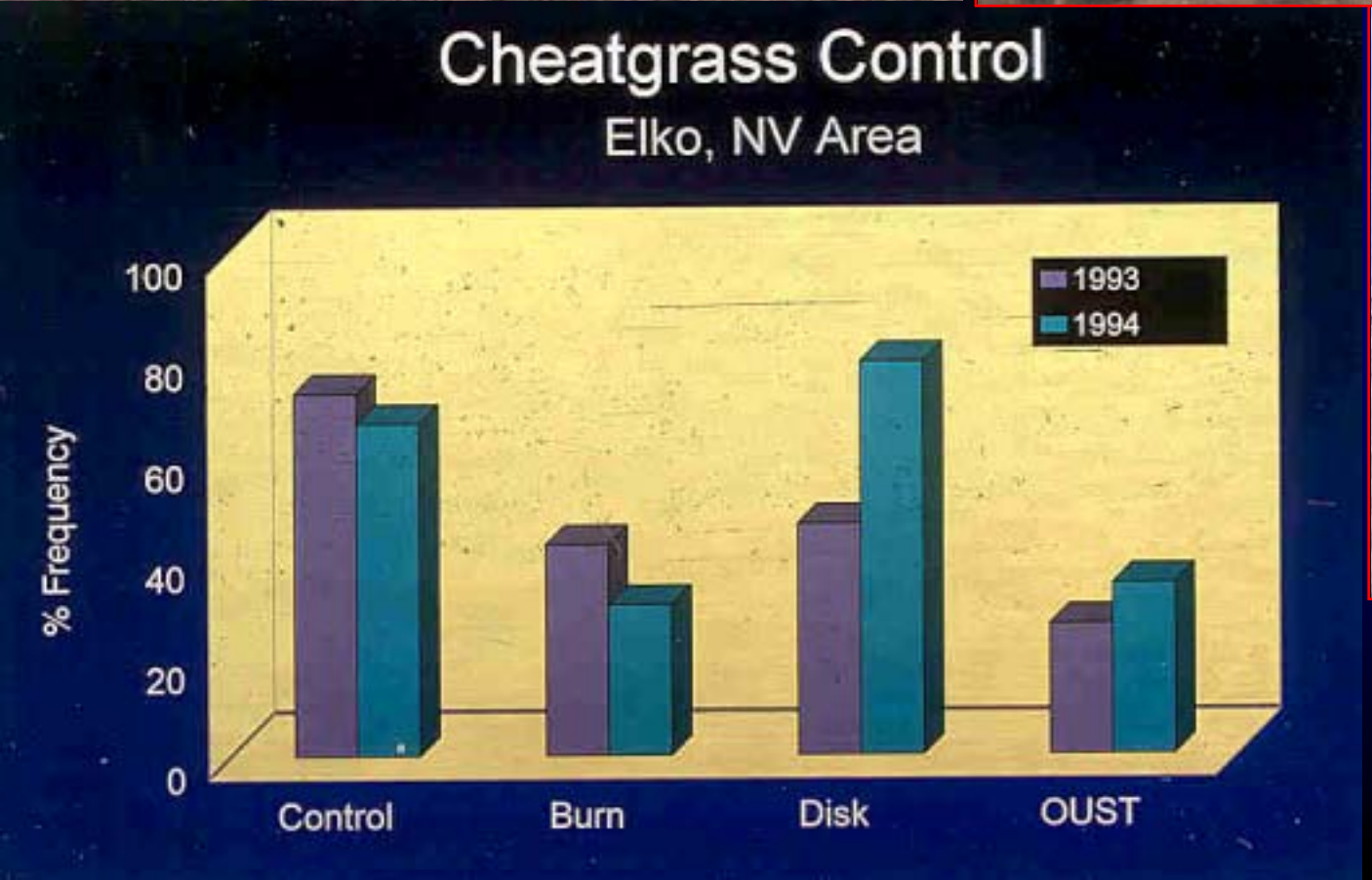
Dry year-- 361 lbs/ac

Biological Control- Livestock Considerations


A VANISHING SIGHT

Idaho sheep growers coming to end of the trail

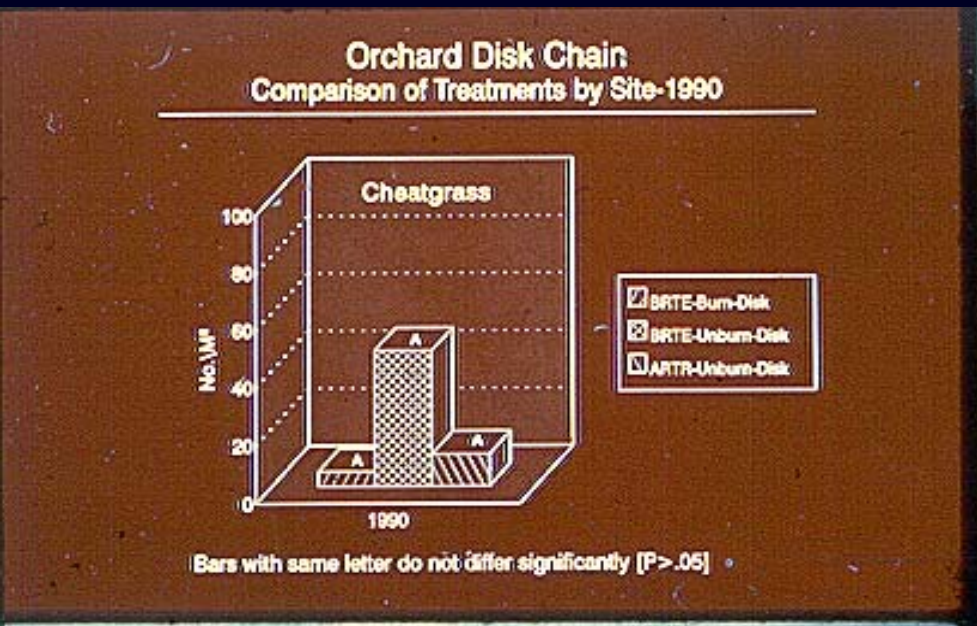
Burn vs. Herbicide (OUST) vs. Disk

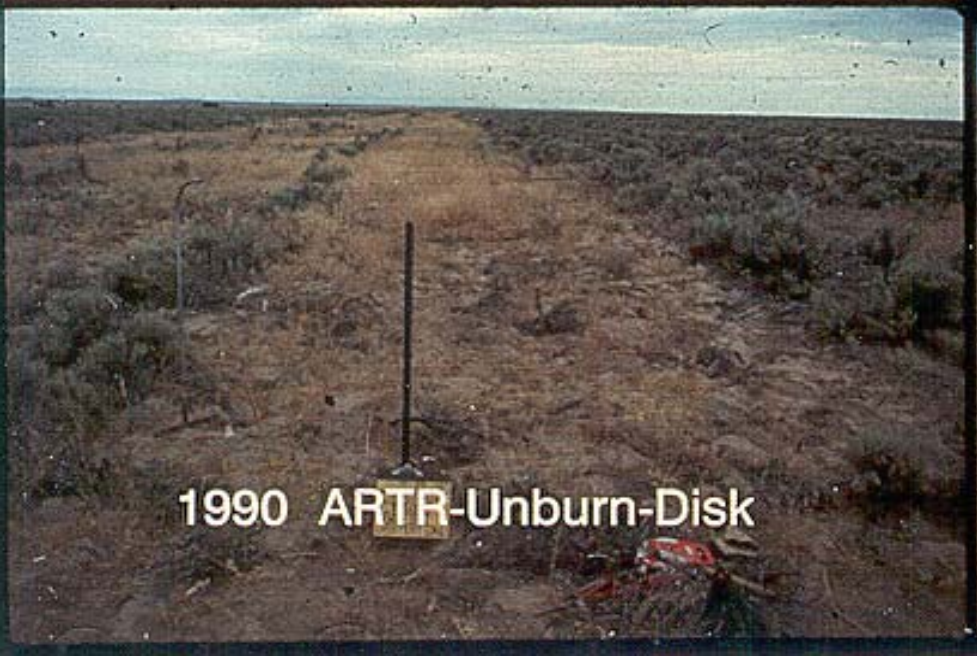


Mechanical Control

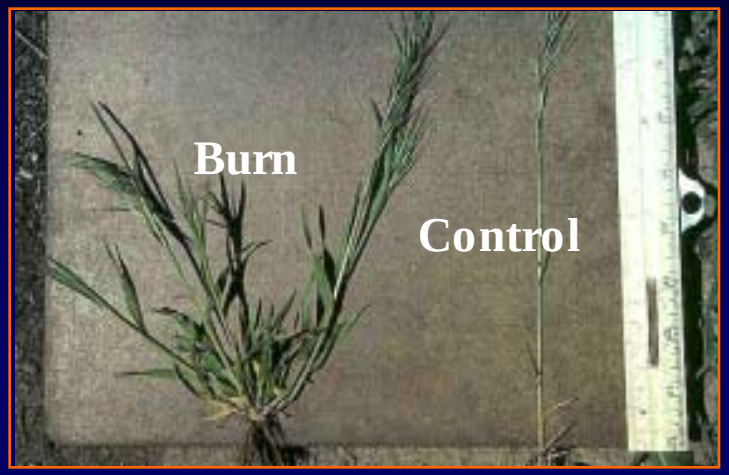
Cheatgrass control requires seed to be buried 2-3 inches (Hulbert 1955) or live plants to be disked or plowed before cheatgrass turns "purple"

Mechanical– Disk Chain





Prescribed Fire



Vigor (seed production) of next years cheatgrass plants increased 4X

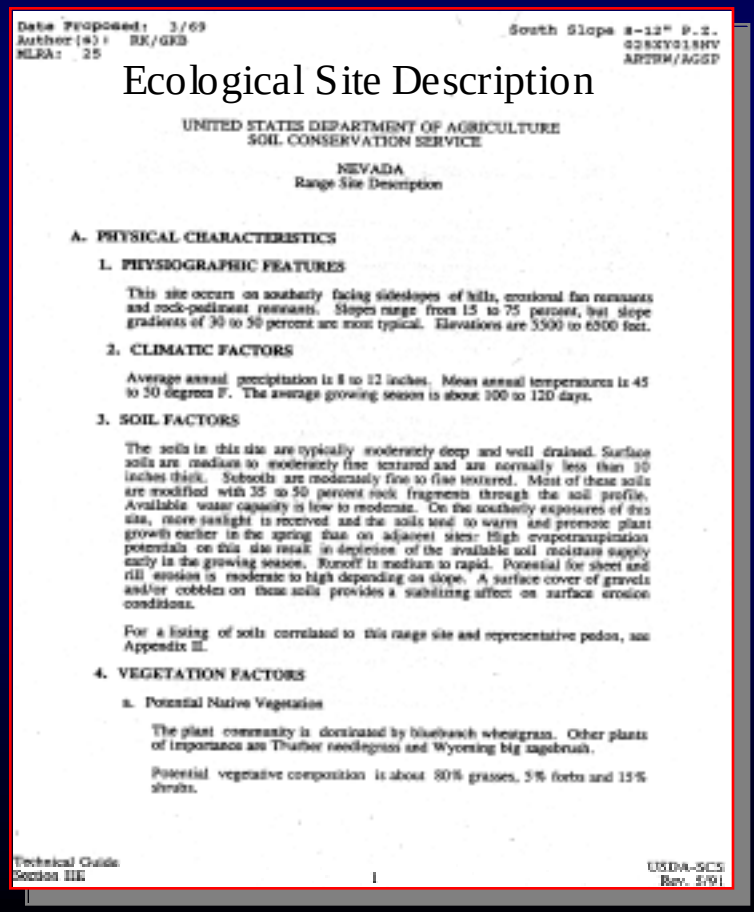
Selecting Fire Resistant Plants

Requirements for Plant Materials

1. *Competitive with annuals.*
2. *Adapted to harsh environments.*
3. *Fire tolerant/resistant.*
4. *Palatable.*

Yarrow

Match Plants to be Seeded with Soils and Site Potential



Date Proposed: 3/69
Author(s): RK/GEB
MLRA: 25

South Slope 8-12" P.Z.
G28XY018NV
ARTRW/AGSP

Ecological Site Description

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

NEVADA
Range Site Description

A. PHYSICAL CHARACTERISTICS

1. PHYSIOGRAPHIC FEATURES

This site occurs on southerly facing sideslopes of hills, erosional fan remnants and rock-pediment remnants. Slopes range from 15 to 75 percent, but slope gradients of 30 to 50 percent are most typical. Elevations are 5500 to 6500 feet.

2. CLIMATIC FACTORS

Average annual precipitation is 8 to 12 inches. Mean annual temperature is 45 to 50 degrees F. The average growing season is about 100 to 120 days.

3. SOIL FACTORS

The soils in this site are typically moderately deep and well drained. Surface soils are medium to moderately fine textured and are normally less than 10 inches thick. Subsoils are moderately fine to fine textured. Most of these soils are modified with 35 to 50 percent rock fragments through the soil profile. Available water capacity is low to moderate. On the southerly exposures of this site, more sunlight is received and the soils tend to warm and promote plant growth earlier in the spring than on adjacent sites. High evapotranspiration potentials on this site result in depletion of the available soil moisture supply early in the growing season. Runoff is medium to rapid. Potential for sheet and rill erosion is moderate to high depending on slope. A surface cover of gravels and/or cobbles on these soils provides a stabilizing effect on surface erosion conditions.

For a listing of soils correlated to this range site and representative pedon, see Appendix II.

4. VEGETATION FACTORS

a. Potential Native Vegetation

The plant community is dominated by bluebunch wheatgrass. Other plants of importance are Thurber needlegrass and Wyoming big sagebrush.

Potential vegetative composition is about 80% grasses, 5% forbs and 15% shrubs.

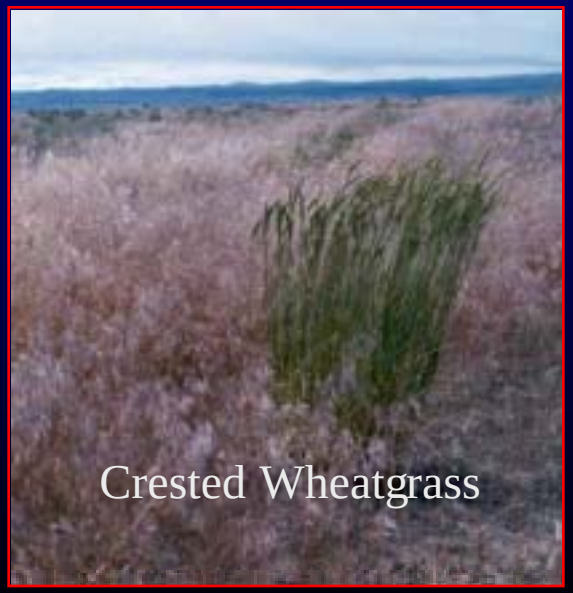
Technical Guide
Section IIE

1

USDA-SCS
Rev. 5/91

Non-Native Greenstrip Plants

1. Crested Wheatgrass (8-14” annual precip.)
2. Intermediate Wheatgrass (14-18” an. precip.)
3. Dryland Alfalfa (Ladak, Nomad & Rambler)
4. Sheep fescue
5. Small Burnett
6. ‘Apar’ Lewis Flax


Crested Wheatgrass

Native Greenstripping Plants

1. Bluebunch Wheatgrass (10-14” annual precip.)
2. Indian Ricegrass (sandy soils)
3. Basin Wildrye
4. Bottlebrush Squirreltail
5. Western Yarrow
6. Thurber’s Needlegrass

Thurber’s needlegrass

Native Grass Greenstrip Trials Kuna Butte, Idaho

Greenstrip Strategy

Greenstrip Width

- **50-100 ft. in light fuels**
- **200-300 ft in heavy fuels**

Consider Topography

Keep Wildfires out of Shrublands

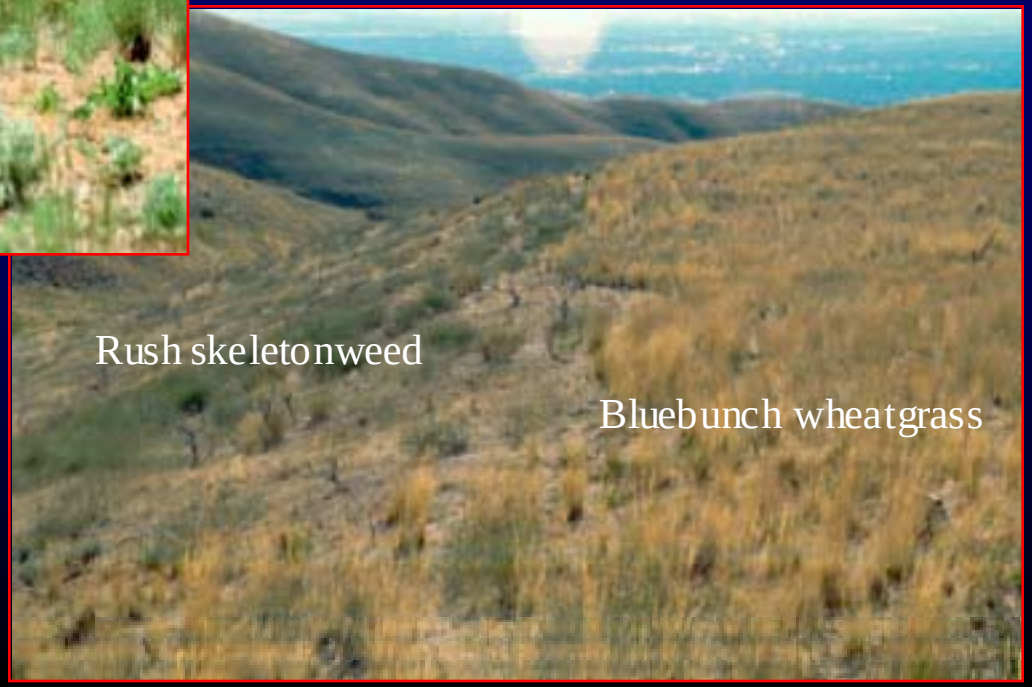
Greenstrip Effectiveness

Forage Kochia (*Kochia prostrata*) Greenstrip

Exercise caution in use of non-natives

Greenstripping- Other Benefits

Slow the spread of invasive weeds



Urban/Wildland Applications

Summary

Native Seed Production

Rearing (irrigation, fertilization & harvesting)

Develop consistent market for growers

Steps to Establish Firescape Plants on Urban-Wildland Interface

1. Select plants that are adapted to the soil.
2. Control weeds (if present).
3. Place seed in the ground (cover it with soil) at proper depth and time.
4. If it is a dry spring, water to establish plants.
5. Control weeds if they are a problem.
6. Manage the seeded plants to maintain them.