Engaging Livestock in Weed Management

Grazing is Powerful

Sheep Reduce Forbs

Goats Reduce Oak

Winter Browsing Reduces Willows

Livestock affect Weeds

- Increase Spread of Weeds
  - Cause disturbance
  - Transport seeds
  - Reduce competition from native plants

- Suppress Weeds
  - Stress weeds
  - Reduce root biomass
  - Reduce seed production
  - Reduce competitive edge

A Western Perspective

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Livestock affect Weeds

- Increase Spread of Weeds
- Suppress Weeds
- Uncontrolled or Improper Grazing
- Prescription Grazing in an Integrated System

Weeds affect Livestock

- Weeds as Forage
- Proper Grazing Management
- Prescribed Grazing

Weeds As Forage

- Many weeds are “nutritious & delicious”
- Manage weeds as forage resource
- Consider forage value
- Concentrate on weeds to meet livestock production goals

Proper Grazing Management

- Maintain weed resistant community
- Minimize Infestations
- Slow Spread of Weeds
- Increase efficacy and longevity of weed treatments

Prescription Grazing

- “Carefully controlled grazing to meet land management objectives”
- reduce weeds in crop systems
- control herbaceous biomass in tree crops
- remove weeds in ‘waste’ places
- control weeds on forest & rangelands

Keys to Prescribed Grazing

- Accomplished by control of:
  - Timing
  - Appropriate Season
  - Herbivore
    - Species
    - Breed
    - Background
    - Condition
    - Age
  - Intensity of defoliation
    - Stocking Rate
    - Frequency
Prescription Grazing

Examples of Application

- Leafy Spurge
- Cheatgrass
- Juniper

Leafy Spurge

- 2.7 million acres
- Sheep and goats successfully used for spurge control
- Considered a “good forage” for sheep
- Some cattle producers contract sheep producers

Effects of sheep grazing

Leafy Spurge Prior to Sheep Grazing – June 7, 2002

Deer Lodge Valley

Sheep Grazing Leafy Spurge after 1 Year – June 17, 2003

Deer Lodge Valley
Sheep Grazing Leafy Spurge after 2 Years – June 18 2004
Deer Lodge Valley

Sheep Grazing Leafy Spurge after 3 Years – June 20, 2005
Deer Lodge Valley

Leafy Spurge

- **Palatability** - Sheep must learn to eat spurge and prefer young plants. Goats readily eat leafy spurge at all growth stages.
- **Effectiveness of grazing treatment** - Low 1st yr, improves after 2nd yr; stem density and biomass significantly declines after several years.
- **Plant response** - May see an increase in 2nd year, with declining biomass and stem density beginning the 3rd year; if grazing is discontinued, leafy spurge can return to its original density.
- **Grazing objective** - Remove 95% of top growth; graze regrowth after first treatment; prevent flowering and seed production.
- **Number of treatments per year** - Gear spurge monoculture: continuous grazing throughout growing season desirable species present; rotational grazing twice per season minimum.
- **Number of treatment years** - Four to five minimum.
- **Integration w/ Other control methods** - Very high with flea beetles (biological) and fall spraying (herbicides).

Cheatgrass or Downy Brome

- **Covers 95 million acres**
- **Palatable and nutritious in early spring**
- **Grazed by cattle and sheep**
- **Remove livestock before perennial grasses grow significantly**

Cheatgrass

- **Palatability** - Sheep & goats readily consumed when green and until plants begin to turn purple.
- **Effectiveness of grazing treatment** - Effective if repeated 2 times/year for at least 2 years.
- **Plant response** - Heavy repeated grazing will reduce plant numbers, size, and seed production.
- **Grazing objective** - Graze cheatgrass plants as early as possible without harming desirable perennial plants; no repeat to prevent seeds from ripening.
- **Number of treatments per year** - Minimum of 2 treatments/yr recommended.
- **Number of treatment years** - Two years of grazing required to reduce plant populations significantly.
- **Integration w/ Other control methods** - Can be used with mechanical methods, herbicides, and controlled burning.
Juniper

- Important Invasive Species:
  - Eastern Red Cedar
  - Redberry Juniper
  - Western Juniper

- Goats successfully used for spurge control
- Sheep & cattle largely ineffective

No goat browsing = 806 juniper plants/acre
Managed goat grazing = 237 juniper plants/acre

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Ecological Forces of Grazing

- Herbivory
- Deposition
- Physical Impact

Costs & Benefits of Prescription Grazing

Costs of Grazing for Weed Control
- cost of animals
- difficult to find animals
- fencing, water, herders, trailers
- reduced animal production
- damage to non-target species
- spread of weed seed in feces, wool, hair, or hooves
- may be incompatible with wildlife

Benefits of Grazing for Weed Control
- can be highly effective
- improved pasture quality
- no pesticide residue... ‘environmentally friendly’
- lower effect on non-target species
- convert weeds into saleable product
- more sustainable control
- feasible in rough terrain
Scale-Dependent Implications

- **Temporal**
  - Long time frame
  - Require long-term planning & commitment
  - Short-term/High-impact?

Weed Control Maintenance

- **Spatial Scale**
  - Small to large projects
  - Large-scale restoration possible

It’s not about **Weeds**, it’s about **Land**

Livestock affect **Weeds**

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- Suppress Weeds
- Uncontrolled or Improper Grazing
  - Prescription Grazing in an Integrated System

What do you want the land to look like?

Depends on Skill & Knowledge!!