Rx Grazing: Are herbivores a “natural” choice?

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Driftless Land Stewardship LLC
Driftless Land Stewardship LLC
Natural Areas Management ~ Ecological Restoration ~ Invasive Species Control

- We specialize in the management, rehabilitation, and reconstruction of natural communities
- Clients include: private citizens, conservation organizations, government agencies, corporations
- Goat ranchers since 2006

~Natural Areas Management since 1997~

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What the heck does that mean?
A lot of labor!
Can we do our job more efficiently?

- **Natural Community** *(MN’s St. Croix River Valley and Anoka Sandplain, Weaver, et al):* An assemblage that tends to reoccur over time and space, of native plants and animals species. Natural communities are classified and described according to their vegetation, successional status, topography, hydrological conditions, landforms, substrates, soils, and natural disturbance regimens (such as wildfires, windstorms, normal flood cycles, and normal infestations by native insects and microorganisms).

Hey, Weaver, et al, “What about macro-organisms?”
Vegetation, disturbance…

...I gots me an idea!!!!
Farmers and land managers have long understood that grazing animals impact the plant community upon which they graze. Additionally, it is well understood that managed grazing (e.g. altering stocking rate, type of livestock, timing and duration of grazing, and return interval) can be used to achieve (i.e. maximize and minimize) specific ecological results.
Outputs of Rx Grazing

- Livestock presence provides various ecological outputs (e.g. consume/damage vegetation, provide ground disturbance, cycle nutrients, disperse seeds)
- Livestock act based on instinct and training (work for free*)
- Many outputs are desirable, predictable, and/or can be manipulated
- Outputs are often difficult to achieve as efficiently with other means (e.g. hand labor, machinery, chemicals, Rx fire)
- Livestock may provide marketable by-products (e.g. meat, hair, leather, milk).
- Livestock presence may affect land use / tax assessment
- Goats are cute
Proof that goats are cute.
**Rx Grazing myths**

- **Rx grazing is free:** Substantial labor and husbandry expense.
- **A single grazing event will kill undesirable and/or desirable vegetation:** Much like Rx fire, a single grazing event negatively impacts, but does not kill, most perennial vegetation.
- **Rx grazing requires permanent fencing:** Most Rx grazing is done with portable fencing or shepherding.
- **Any species, herd size, or timing is appropriate for Rx grazing:** Grazing must be specifically tailored to *efficiently* maximize desirable impact and minimize undesirable impact.
- **Goats are not cute.**
Ridiculous myth!
Rx Grazing

- Takes many forms:
  - Managed rotational
  - Patch-burn-graze
  - Single / multiple species
  - Fenced / shepherded

- Results can be varied by manipulating variables such as: stocking rate, type of livestock, timing and duration of grazing, and return interval
Rx Grazing: key concepts

Systems and Variables
Managed Rotational
- aka: Management Intensive Grazing
- Stock are moved between paddocks to achieve and/or avoid specific outcomes
- Fenced or shepherded

Patch-Burn-Graze
- Stock rotate themselves within a single paddock based on their innate preference for recently burned, highly-palatable vegetation, thus resting unburned portions of the paddock.
- Fenced perimeter
Livestock Selection

- Species
- Type (e.g. meat, dairy, fiber)
- Breed (e.g. Holstein, Angus, Angora)
- Sex (M, F, castrates)
- Age
- Experience
- Native grazers (e.g. Bison, Elk)
- Multiples: species/type/breed/sex/age
- Outside the box (e.g. Beaver, Insects, Prairie Dogs, exotic megafauna)
Which animal is best?

- **Species** (e.g. Cattle, Sheep, Goats, Bison)
- Generally traditional livestock
- Easy to acquire
- Established vet care
- Established markets
- Each has pros and cons
- Dietary preferences, logistics, marketability
- Cattle: 70% grass; disturbance prone; most marketable
- Sheep: Prefer forbs and succulent grasses
- Goats: 60% brush; widest dietary preference; excellent resistance to plant toxins; most agile; eat wood/bark, low water requirements, most difficult to fence
Which animal is best?

Each has pros and cons!

- **Type** (e.g. meat, dairy, fiber)
  - Long-haired fiber animals may increase seed dispersal
  - Dairy operation not conducive to Rx grazing; Large udders susceptible to injury.

- **Breed** (e.g. Holstein, Angus, Angora)
- **Sex** (M, F, castrates)
- **Age**
  - Dietary, behavioral, health, and economic idiosyncrasies
- **Experience**
  - “Professional” herds have learned, and teach, their job
Which is best ...cont’d

• Native grazers (e.g. Bison, Elk):
  Domestic vs wild
  Permitting issues
  Reintroduced component

• Multiples (i.e. species/type/breed/sex/age):
  “Best of both worlds”
  Compound management needs

• Outside the box:
  (e.g. Beaver, Insects, Prairie Dogs, exotic megafauna)
  Giraffes for tree canopy????
  Expense and management issues
Other Variables

• Stocking Rate: The number of animals that graze a given area of land for a specified period of time (e.g. 100 goats per acre per day)
• Timing: Season
• Duration: Length of time that grazers are present
• Return Interval: Length of time between grazing periods
What works best?

- Every site is unique
- Different types and amounts of desirable vegetation
- Different types and amounts of undesirable vegetation
- Different resilience to disturbance
- Different logistical hurdles (e.g. fencing, water, parasites, access, other management practices)
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Why Rx Grazing for DLS?

- Efficiency
- Manual labor is very expensive
- Much terrain is too rugged for machinery
- Many areas will not burn
- Another tool for the tool box
- Property Taxes and Use Value Assessments
Why goats for DLS?

- The Midwest has a long history of unmanaged (primarily cattle) grazing; plants palatable to cattle have decreased while those unpalatable have increased.
- Goats, if forced, will eat most any vegetation (e.g. thorns, toxic plants, branches, bark).
- Goats actively seek out many of the species left by cattle
- Post-Eurosettlement fire suppression has increased woody species preferred by goats.
- Wide selectivity + management = multi use (i.e. brush, invasive forbs, grass)
- Goats are agile on extreme terrain. Light weight = minimal disturbance
- Goats have a traditional ag support base (i.e. markets, vet care).
- Small size allows for easy handling.
- Low water demand
What have we learned?
Excellent vegetation management tool

- Can be managed to eat almost anything.
- Before
Excellent vegetation management tool

- Can be managed to eat almost anything.
- After
Excellent vegetation management tool

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- After
Excellent vegetation management tool

- All terrain
- Extremely agile
Excellent vegetation management tool

- Extremely motivated to eat!
- Eat from top to bottom
- Strong climbers
Excellent vegetation management tool

- Girdle small stems
- Mimics Rx fire
  …anytime!
Excellent vegetation management tool

• In cattle pastures, Goats devour vegetation untouched by cattle.
• Much like fire, top kill small stems and ignore large trees.
Excellent vegetation management tool

- Fenceline before & after
- Complete defoliation; leave most stems until last
Economy of scale

• Aside from winter feeding, the primary cost is transport and paddock setup.
• Not cost effective for a couple animals or a tiny paddock.
• At the scale of 50-100 animals, still not as efficient as machinery.
• Price similar to Rx burning and NRCS brush management per/acre rates.
Excellent surrogate for fire with less restrictions

• “Burn” fuel poor areas
• “Burn” more than once per year
• “Burn” in any season/weather
• No smoke related issues
• Minimize impact to fire-sensitive critters.
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Digest most seeds that are consumed.

- Target flowers and seedheads
- Research has shown that many seeds are digested.
- Varies by type of seed and goat diet.
Chevon & Cabrito

- High-performance Boer x Spanish meat goats
- Grazed on a natural diet
- More than just environmentally-friendly; a byproduct of Natural Areas Management.
- Flavor similar to beef
- 40% the fat of skinless chicken
Goats are cute!
Thank You!

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