



# Public Grazing Lands in Practice: Grasslands and Grazing Ecology

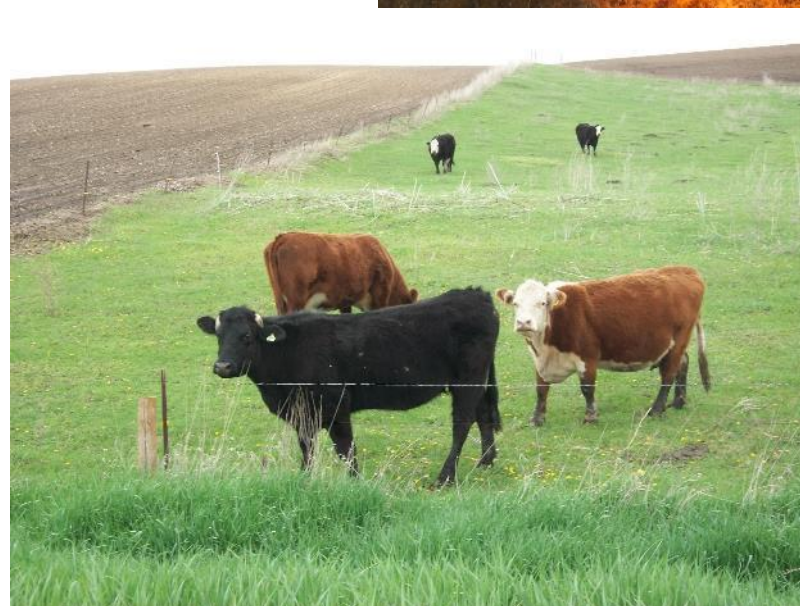
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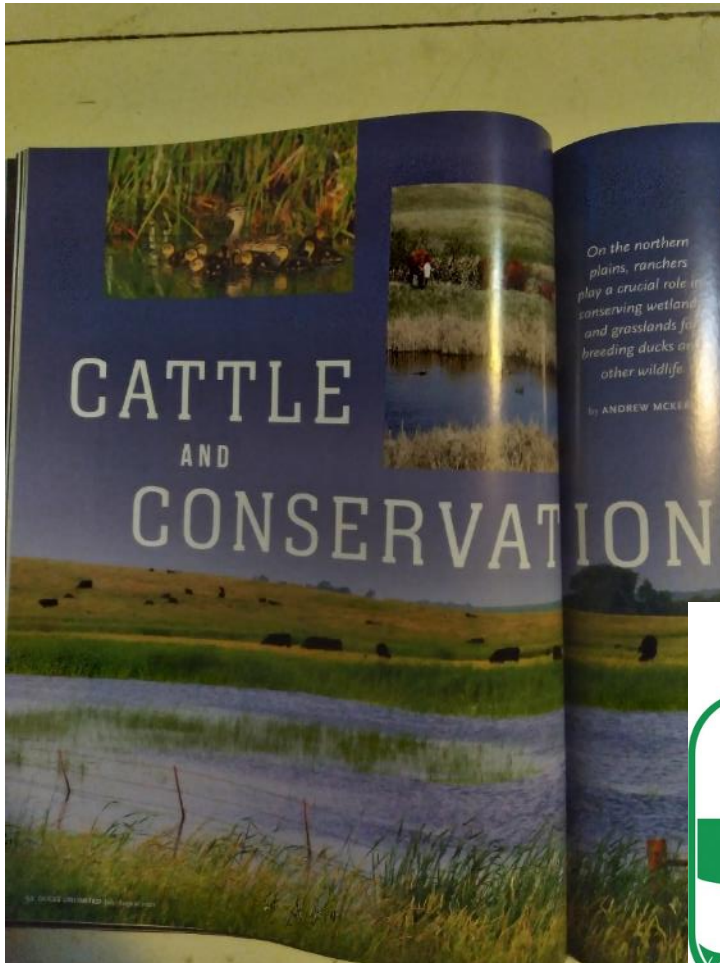
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# Grazing as a Tool, Not a Magic Wand

- We can do “good” and “bad” things with grazing
- Same applies to fire
- Even ‘bad’ grazing will recover
- What looks bad now, may look great in a few months
  - Spring Rx fire and nesting cover









# Grazing and the Public

- Comments from public
  - Grazing on wet soils
  - Allowing this to regrow to 4 ft tall grass and walking through it with a loaded gun?
- With a conversation, you can gain support



# Grazing and work load for agency staff

- Rx fire
  - Plan, burn, walk away
- Grazing
  - Plan
  - Develop relationship with producer
  - Fencing, electricity, water, etc
    - Escaped cattle, storm knocked fence down
  - Frequent monitoring
  - Time-consuming to do it right
- Rx Fire
  - Burned vs unburned
  - Early spring, late spring, late summer
- Grazing
  - Vary seasonality, length, stocking rate/intensity, small areas, etc
  - A lot more flexibility and fine-tuning

# Ecology of grazing - Take Half, Leave Half

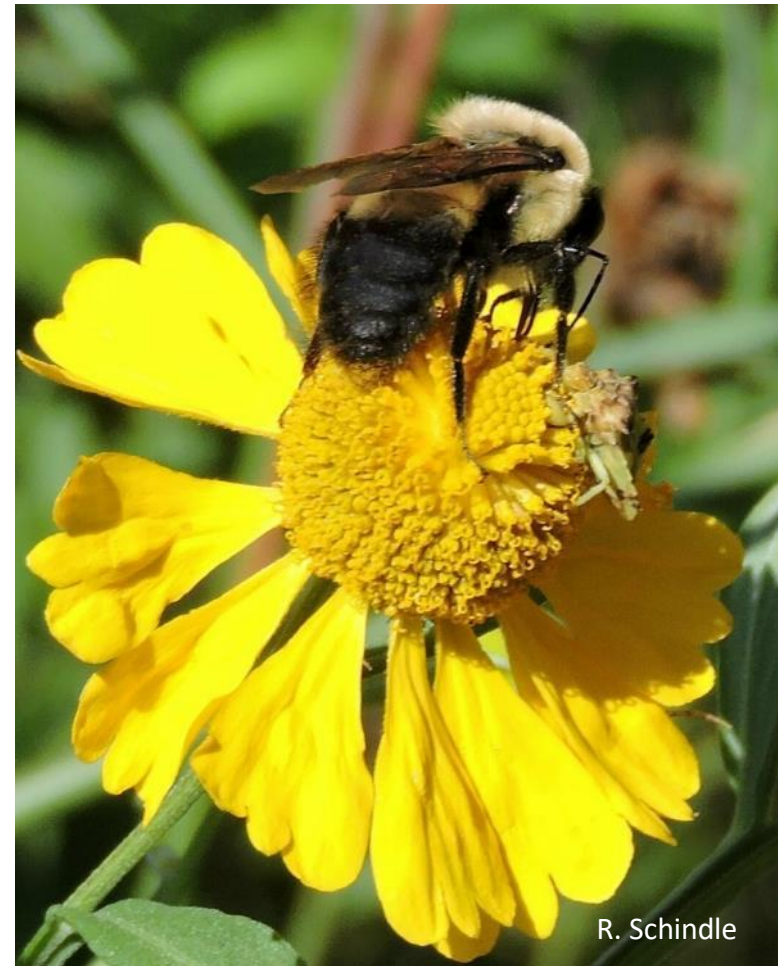
- “As a general rule, cattle and ducks can live together reasonably well on the same sites when grazing is sufficient to remove half the average amount of primary forage plants...  
Bossenmaier 1964
- Take half for the cattle, leave half for the critters





# Beef > Blooms > Bugs > Birds

- Two primary habitat effects
  - Structure of vegetation
  - Diversity of vegetation and diversity / abundance of invertebrates
    - Inverts interesting all by themselves
    - Base of food chain for many wildlife species



- Loafing Areas
  - “...the trampling of edges by cattle destroys the vegetation and creates improved loafing areas for ducks. Sowls 1955
  - “Water without an acceptable loafing spot is not acceptable as territory to these species. Hochbaum 1944





# (Dense) Nesting Cover - Ducks

- Waterfowl
- “...lightly grazed pasture is used by territorial pairs of Blue-winged Teal, Shovellers, Pintails, and Lesser Scaups, species that prefer the more open grassland for nesting.  
Hochbaum 1944
- From Bellrose 1980
- Pintail – “open areas for their nests where vegetation is either low or sparse.
- Blue-winged teal – “Hayfields are used extensively for nesting in the Midwest.
- Shoveler – “Shortgrasses are preferred to tallgrasses...

# Nesting Cover – Song- and Shorebirds

- From Johnsgard (2001)
- [marbled godwit] ...the birds seek out relatively short and sparsely vegetated habitats...Grazed habitats are preferred....They [nests] are also in quite short grassy cover.
- [upland sandpiper] Hay meadows, large pastures, agricultural lands that include stubble, moderately grazed pastures, and similar habitats are used during the breeding season.
- [western meadowlark] They preferentially select open, grassy-dominated fields...
- [eastern meadowlark] ...open grasslands, meadows, and fields...

- cattle grazing “could be used to increase the abundance of some grassland bird species, even at moderately high stocking rates”  
Ahlering and Merkord 2016





# Nest Predation

- “Light grazing apparently destroyed the ideal skunk and badger habitat in the study area. Bennett 1938
- Take enough to expose the predator, leave enough to conceal the nest



# Grassland Structure

- Paths

- “[Blue-wings] Grass-grown cow paths seemed to be ideal lanes of travel when they were available... Apparently too dense a growth of vegetation made traveling difficult. Bennett 1938
- “[Ducks] Broods generally follow the path of least resistance... Hochbaum 1944
  - [broods travel “several miles” along paths vs “a distance measured in yards”
- “The paths and small areas of reduced cover resulting from the activities of the cattle facilitate the movements of young birds [prairie-chickens], and provide places suitable for sunning in times when the grass is wet. Baker 1953





- Foraging habitat
  - “Feeding rates of bobwhite chicks were sensitive to vegetation-influence mobility. Management of...fields for both pheasant and quail chicks can be reconciled by practices that permit more open space at ground level... Doxon and Carroll 2010
  - “We suggest that land managers [greater prairie-chicken] in the Sandhills region provide brooding habitat in grazed, upland ecological sites... Anderson et al 2015



# Plant Diversity

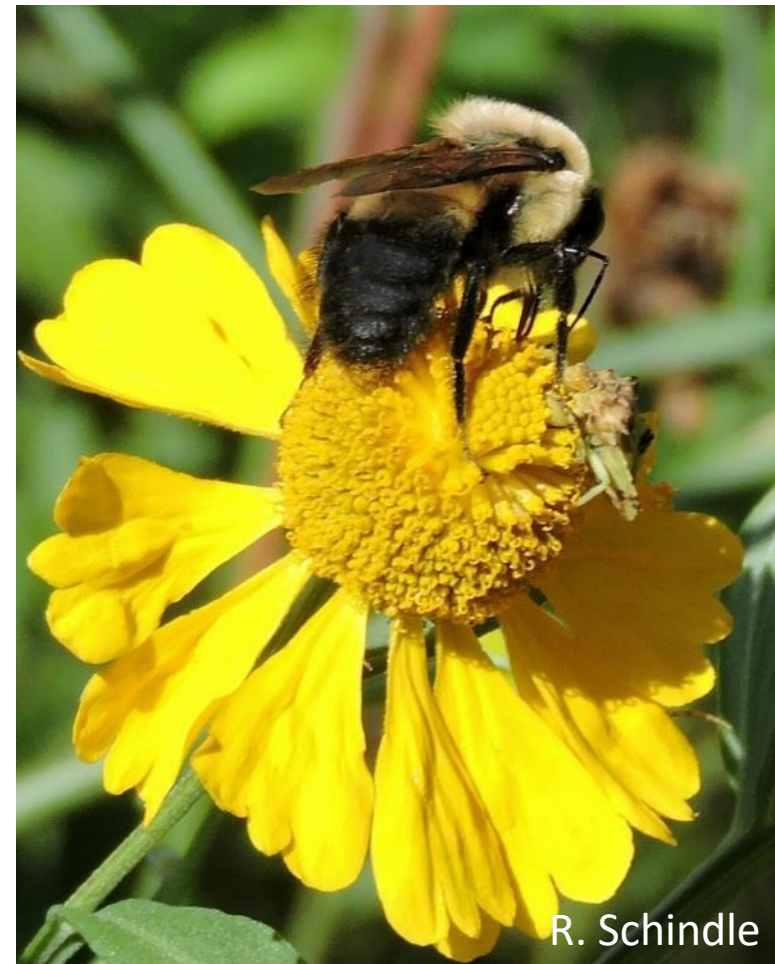
- Numerous studies have shown that grazing increases plant diversity
  - Too much grazing can lead to invasive species infestations
- Grazers focus on grass
  - Release the forbs from competition





# Pollinator Diversity

- “All of these arthropod variables were significantly positively correlated to plant species richness in the fields. Siemann *et al.* 1999
- “The shifting mosaic created by the Patch Burn treatment provides habitat that meets a requirements for a broad range of invertebrate species. Engle *et al.* 2008



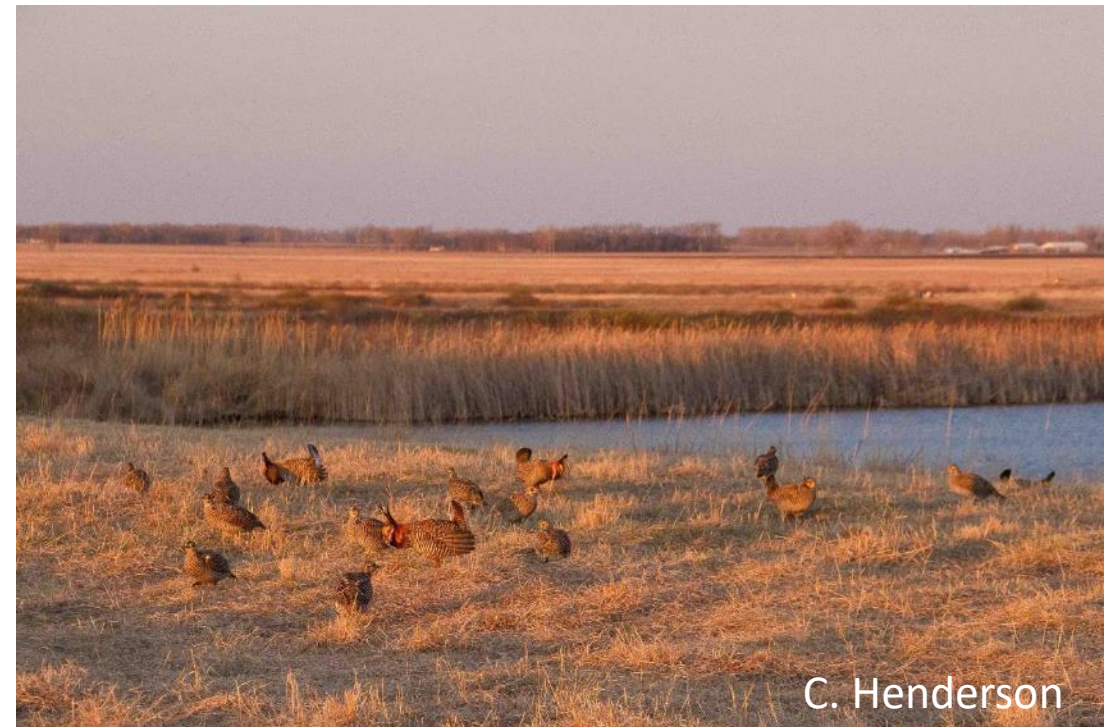
# Invertebrate abundance

- “Practices that maintain or increase forb cover likely will increase invertebrate biomass and habitat quality [for lesser prairie-chickens] in southwestern Kansas. Jamison et al. 2002
- Grasshopper density for 7 of 9 responded positively to grazing – Joern 2004
- There were 45% more grasshoppers in grazed areas – Joern 2005



# We need a little bit of everything out there

- Nesting habitat, brood-rearing habitat, fall habitat, winter habitat can all look very different, even for one species
- A lot of species with a lot of different habitats
- Prairie-chicken
  - Spring – booming ground – very short
  - Summer – brood cover - shorter
  - Fall and winter - thicker





# Literature Overview

- “Thus, it seems as though grazing to a certain extent is needed, even today. Bennett 1938
- What about hay meadows? Isn't a partly hayed country more favorable to prairie chickens than one left entirely uncut? Leopold 1949
- “Fortunately, the practices recommended for the most profitable long-time use of grasslands are beneficial to prairie chickens. Baker 1953
- “As surely as the buffalo in pristine times made its impression on the marshes; today's cattle have their place in marsh management. Sowl 1955
- “Cows and cutter bars can be either a liability to waterfowl or serve their needs as can few other tools in the game manager's kit. Bossenmaier 1964

# Thank You!

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