

Management Techniques to maintain and improve Biological Soil Crusts

Roger Rosentreter





Fire

- Prescribed Fire? Only in Mountain big sagebrush habits and higher elevations
- Post-fire restoration
 - Minimum surface disturbance
 - Reseeding perennials to combat annual exotics
 - Close area for grazing for several years
 - Close area for OHV use for the first season.



Minimize surface disturbance
-depth bands, soil moisture



Surface erosion



Minimum till drills



Pressing the seeds into the soil



Anchor Chain?



New rangeland Drill, Truax







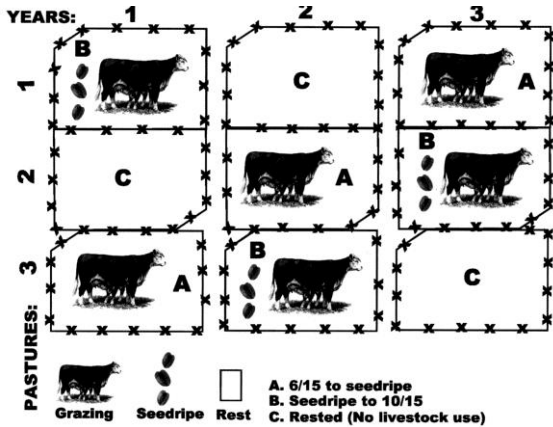
Livestock Grazing

- Season of use, timing
 - Winter use is best for low elevation sites.
 - Dependant on soil type
 - Use silt loam soils when moist
 - Use clay soils when dry
 - Use sandy soils when moist
 - Allow 4-6 weeks of moist surface soils for the crusts to recover (Memcott et al. 1998)

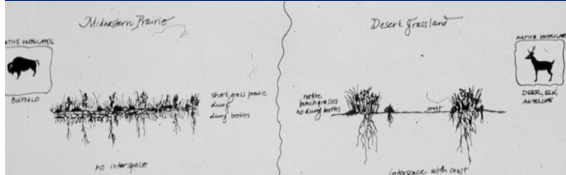


- Winter grazing most closely replicates the grazing strategy of Native herbivores.
- Rest rotation that uses a given site only every other year is also a good strategy.





Different ecosystems have different processes that they are adapted for



Season of use difference?



Avoid trampling on fragile soils

- Locate salt and water to avoid specific areas
- Use fencing or Brush piles to divert trailing. Crusted sites are easy to walk thru, but can damage soil stability.



Season of Use, soil moisture?



Reference Areas are needed



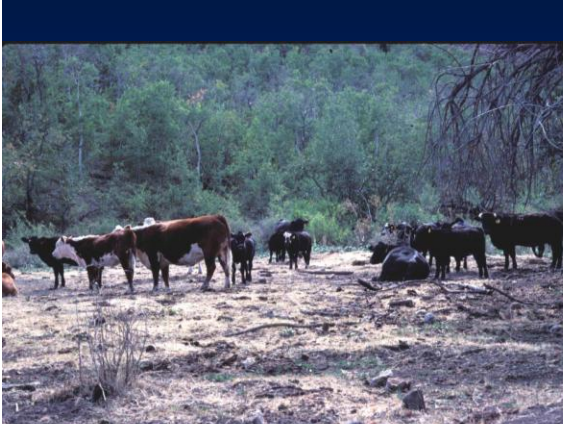
The Bureau needs more rangeland Reference Sites.



Stocking levels

- Levels of stocking should be based on comparison to un-grazed reference site
- Optimal levels of stocking should be based on both vascular plant and biological soil crust cover.
- The bottom line is soil stability.





Recreational Use

- People have an affinity for open vegetation
- People are harder to control than cows?



Spreading Cheatgrass



Managing recreation

- Limit access
- Encourage travel on roads and limited trails
- Designate and mark trails
- Limit access seasonally
- Limit high-impact activities to short durations



Managing recreation

- Provide interpretive sites and literature about the value of crusts.
- Manage for the recovery of crusts post disturbances.
- Prohibit pet use on trails that are surrounded by areas of high crust cover





Crust are limited by

- OHV's
- Livestock trampling
- Wildfires
- & Other soil disturbances
 - Leads to bare ground
 - Dust
 - Recruitment of cheatgrass and other weeds