Green Lands, Blue Waters Conference

Notes from Breakout Session: Perennial Forage and Pastures – 11/29/16

by Michael Borucke, University of Missouri student

Max Alleger from Missouri Department of Conservation presented on Patch-Burn Grazing, or the use of fire to mimic mob-grazing movements without fencing.

The goals behind patch-burn grazing done by MDC on private lands were directed toward meeting the habitat needs of tallgrass prairie species. This is also known as conservation grazing.

Many stakeholders in conservation--not all agree with grazing on public lands.

Several cite chronic overgrazing of tallgrass prairie.

In the 1990's there were 200-400 plant species in prairie ecosystems, but few if any were providing for wildlife.

Removing grazers from prairies/public lands increased then decreased target species over 10 years: "protecting [target species] off the face of the property"

Patchy spaces in prairies are helpful for wildlife. Heterogenous spaces within larger matrix ecosystem create edges necessary for the life-cycle of some species of ground-birds.

Prescribed fire doesn't increase heterogeneity; it also doesn't provide gradual transition-only burnt or not.

One target species for the MDC patch-burn grazing is the greater prairie chicken, which is currently endangered.

On the spectrum between no grazing and overgrazing there is a moderate grazing, which can create a habitat suitable for bird species like the greater prairie chicken.

The prescription for patch-burn grazing (or at least the method used by the MDC) – The five-year rotation method: in the 1st year, burn 1/3 of the pasture. Grazers will prefer the tender grass re-growth and will spend around 2/3 of their time on the burned patch. The 2nd year, burn another 1/3 of the pasture, and the 3rd year burn the last 1/3 of the pasture. The 4th and 5th years are rest years when no burning occurs (idle years). Patch areas should be the size of a small (conference) room—less than an acre—scattered within the larger pasture.

This will create a patchy bare ground next to tallgrass prairie (edge) needed for gallinaceous birds. Ground-nesting birds have a broad range of habitats and are thus a good indicator of range health.

Patch-burn grazing approaches mob-grazing without fenced-in paddocks (save on labor). Fences can complicate private use.

Cow paths can be beneficial, albeit temporary, wildlife corridors providing edge.

In summary, heterogeneity is better than homogeneity in tallgrass ecosystems in regards to wildlife birds. Birds, like the Upland Sandpiper make their nest on the soft edge near bare ground in order to move chicks away from the nest to evade predators.

Grazing also makes invasive plant control easier; grazers will tend to eat around and thus expose invasives.

Dusty Schaaf, Missouri Farmer-Collaborator

Schaaf Farm is the location where the MDC patch-burn method (described above) has been implemented. Below is the farm operation as described by presenter Dusty Schaaf.

Run cattle 90 days on pasture; turn in on native grasses on May 1st; Has a 3,000 acre site composed of 3-4 patch-burn units; cow/calf & yearling operations; 200 Fall-calving and 600 Spring-calving cows; Red Angus based herd. Forage available 11 months per year; stock-pile grass for 12th month; fair-sized pastures (180-200 acre pastures); Let everything have 90 days rest after burn(?); aim for 50-60lb gain of yearlings by Spring. Yearlings go on native grass in Spring; Osage Plain native forage, Indian grass, switchgrass, big bluestem, and little bluestem. Feed on fescue when there are no native species. Aim for 250lb gain for Steer in 90 days.

Diomy Zamora, Extension Professor, University of Minnesota,

Diane Mayerfeld, Center for Integrated Agricultural Systems, UW-Madison,

Jim Chamberlin, Happy Dancing Turtle

[These three speakers co-presented collaborative research on silvopasture systems.]

Silvopasture combines timber, livestock & forage production, it is intensively managed, and managed for all three components. Annual returns are realized from forage harvest and/or from livestock. Silvopasture systems can be created through the planting of trees in open pasture or by thinning existing forest enough for planted forage/native species to get sufficient light. This is NOT “grazing the woods”. Historically the later has been detrimental to ecosystem health, and has given a bad name to silvopasture, which is unwarranted.

Silvopasture has been working in the Southeast US and in Missouri for years, but not too much in the Northern US. However, it is known that ranchers are still putting cattle into woodlands. This is NOT silvopasture, but it suggests that farmers may be open to adopting silvopasture methods.

The following is a description of the silvopasture research project conducted in Minnesota.

3 ranchers collaborated, establishing tree systems on three five-acre plots

3 Paddock types tested: 1) Open pasture 2) Silvopasture and 3) Traditional Forest -- paddocks 1 and 2 were subjected to thinning and fertilizing.

In the traditional forest paddock forbs were found to be growing in the understory; in the silvopasture paddock there were more grasses growing. Forages in the silvopasture paddock saw a flattening of production peaks and valleys (good) as well as an extension of growing time.

In silvopasture paddock cows lost 10% less weight, had less stress at calving, weaned heavier calves [unclear to which paddock the silvopasture results were being compared]

50% light for cool shade grasses is all that is needed.

For NO3-N and NH4 leaching: silvopasture decreased the soil N → This is good for water quality requirements. Rhizodegradation of several antibiotics including FDA, GLA, GLU has been shown to occur through stimulated Microbial Enzyme Activities when planting hybrid poplars. This is also good for improving water quality. Silvopasture can sequester more soil carbon that open grasslands, and silvopasture bulk density is less than open grasslands and traditional forests, which increases water infiltration and reduces erosion.

Dusty Walter, University of Missouri

[Discussed the Tomazi Farm and the Grazing Systems Program at University of Missouri]

Noted that fungi inside of fescue can adversely affect livestock by making the vascular system constrict.

Farmer at Tomazi Farm had forest adjacent to 3 open forage paddocks (see Figure 1). He put fences partially into the forest and thinned out the forest to make a silvopasture. The reasons for adopting silvopasture included improving weight gain in the heat of the summer, and increasing grass acreage by putting non-productive land into production. The economic benefit-to-cost ratio was 3-4 to 1. Read here for details.

Figure 1 At Tomazi Farm, 3 paddocks including open and thinned forest for silvopasture.

As an ancillary benefit, the silvopasture provided a great space for hunting as deer loved the transition zone between open pasture and forest.

Tyler Carlson, Minnesota Farmer-Collaborator

[Tyler owns and runs Early Boots Farm near Sauk Centre, Minnesota]

Silvopasture at Early Boots Farm (200 acre, 65 acres tillable) consists of both putting trees into pasture, and thinning woodlands. Oak-Aspen forest type. A great deal of experimentation happening on the farm regarding silvopasture methods. Currently looking at double rows of trees at different spacings. 50 feet spacing is reasonable for his herd.

Tyler's silvopasture goals: gain data; provide habitat & wildlife, aesthetics, income(!), soil carbon and water quality.

Forages include chicory, clover and improved cool-season plants. Keeps native forest forbs in the silvopasture as well as seeding orchard grass and clover. Browsing by wildlife is a perennial problem. Uses a blood-based spray as browser repellant.

Tyler's grass-fed beef is sold direct to consumers. Early Boots is Minnesota Agriculture water quality certified.