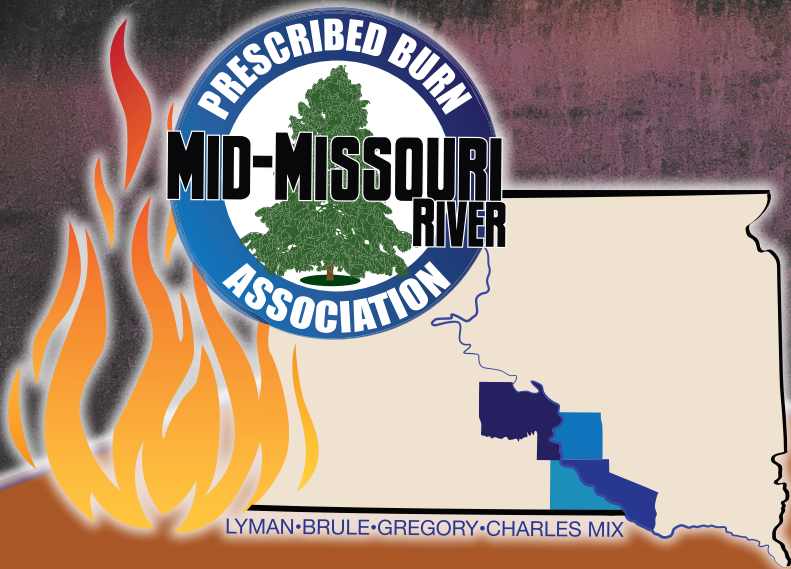




Mid-Missouri River Prescribed Burn Association

News



Winter 2022

Focusing on cedar tree control and grassland health



Welcome

New ideas for 2023

By Keith Hovorka & Sean Kelly, MMRPBA Chairman and Vice Chairman

Just like in 2021, 2022 was filled with ups and downs for the MMRPBA. Nobody said getting prescribed fire on the ground in South Dakota was going to be easy! The weather in the spring of 2022 was challenging. Extreme wind and dry weather hampered any efforts to conduct scheduled burns in March or April. We were finally blessed with precipitation during the first week of May. However, the abundant precipitation quickly turned many of our burn units green with a flush of new grass growth almost overnight. After much assessment, no burns were attempted during the month of May due to the green vegetation.

Our burn window is so small in the spring, essentially February (if weather is warm and no snow cover) to the first of June is all we have. Therefore, after discussion among the Board of Directors over the summer, we determined something needed to be done to get fire on the ground. We had two landowners who were willing to take a risk on conducting a fall prescribed burn. None of us knew if a fall burn would be successful, but we felt we had to try. On October 30, 2022, we conducted our first fall prescribed burn north of Bonesteel along the Missouri River. It was a tremendous success! The cedar trees were extremely ripe for burning and ignited easily.

As we transition into 2023, fall burning will definitely be an option for our burn units that don't get completed in the spring. The MMRPBA has set a new policy for establishing firebreaks with a soft deadline of Feb. 1 and hard deadline of March 1. Please read more about this on pages 6-7 in this issue.

The interest in prescribed burning continues to grow in the four-county MMRPBA area and the rest of the South Dakota. A Woody Plant Control Summit was held Dec. 1, 2022 in Oacoma, SD. Read more about this on page 3.

MMRPBA will hold our annual membership meeting on January 15, 2023 in Bonesteel, with the University of Nebraska's Dirac Twidwell as guest speaker. He has dedicated his career to research on cedar encroachment and is an engaging and down-to-earth speaker. We encourage families, neighbors and community leaders to attend. Area FFA chapters are also being invited. Please watch our Facebook page and website, www.midmissouririverpba.com/, for further details. We hope to see you January 15th in Bonesteel!

Mid-Missouri River Prescribed Burn Association News Sponsored by the Mid-Missouri River Prescribed Burn Association and SDSU Extension

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and upcoming event details:**

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www.MidMissouriRiverPBA.com

South Dakota holds first Woody Plant Control Summit

Over 100 attendees representing numerous agencies, organizations



A nice crowd attended the first ever Woody Plant Control Summit which was held Dec. 1, 2022 at the Arrowwood Cedar Shore Resort in Oacoma, SD.

By Kindra Gordon

"We have opportunities to make a difference...to make a change with woody plants in the state. We can't do it alone, and it's exciting to see so many people in the room." Those were the words of South Dakota NRCS State Conservationist Tony Sunseri as he addressed the more than 100 individuals gathered for the first ever Woody Plant Control Summit which was held Dec. 1, 2022 at the Arrowwood Cedar Shore Resort in Oacoma, SD.

The event was coordinated by SDSU Extension Agriculture and Nature Resources Senior Program Leader Sandy Smart, along with leadership from South Dakota NRCS and the South Dakota Grassland Coalition.

Among the organizations represented at the Summit included: private

landowners, South Dakota Grassland Coalition, Mid-Missouri River Prescribed Burn Association, SD Game, Fish and Parks, SD Association of Conservation Districts, SD Department of Agriculture, Bureau of Indian Affairs, Intertribal Agricultural Council, Lower Brule Sioux Tribe, Army Corps of Engineers, Buffalo Gap National Grasslands/Forest Service, Audobon Society, Pheasants Forever, Nature Conservancy, National Wild Turkey

Federation, Bird Conservancy of the Rockies, Mule Deer Foundation, Northern Great Plains Joint Venture, SD Soil Health Coalition, and several others.

Of the Summit, Smart stated, "This is just the beginning with a focus on building a community and ideation phase, and eventually developing action items." Regarding control of invasive, woody species he noted, "We really need to do this together as partners. Woody encroachment threatens grasslands [for grazing] as well as habitat for grassland birds, wildlife and pheasants." Roughly half of South Dakota's land mass is in range and grassland.

The days' events included an overview on the historical spread of Eastern Red Cedar across the Great Plains by University of Nebraska researcher Dirac

Twidwell. He told attendees, "Every state south of you has done this going back to 1960's Texas, but no group has come together to act fast enough....But South Dakota, you all can do something the rest of the Great Plains can't – Get ahead of it."

Twidwell explained that to date we have lost more grasslands than any other biome in the world – and they [grasslands] have the least federal protection.

From his research Twidwell has found it is not effective to "chase" the Eastern Red Cedar encroachment problem. Instead, he advises spending money along the zone where trees begin to invade into grasslands. He explains that 95% of Eastern Red Cedar seedlings occur within 200 yards of a seed source. That's approximately two football fields. Of this Twidwell advises, "Manage that [zone] and attack ERC trees," with emphasis on 5-foot-tall trees because that's the size when they begin to produce new seeds.

His call to action is "Defend the Core." And to South Dakota he says, "You in South Dakota should be able to say we have one of the last large grasslands left – and you should defend that."

Additional presentations during the Summit featured individual producers, and round-table discussions where input was gathered on awareness, actions, concerns, and opportunities to address woody plant encroachment on grasslands. From that input, action steps were prioritized, and next steps will be developed.

Gregory County FFA members attend Summit

Five members of the Gregory County FFA Chapter attended the Dec. 1, 2022 Woody Plant Control Summit. The event offered these ag youth an opportunity to learn firsthand about the growing Eastern Red Cedar control issue in South Dakota, and how it has negatively impacted other states. The students were praised for being in attendance by many of the speakers at the Summit. The students shared that their awareness for the threats posed by ERC invasion was increased, as was their awareness for potential management practices, including the use of prescribed fire.

The Gregory County FFA Chapter was established as a new South Dakota Chapter during the 2021-22 school year with Mollie Andrews as Chapter Advisor. (Mrs. Andrews is the daughter of MMRPBA board member Sara Grim). Gregory County FFA has plans to host other FFA Chapters on Jan. 15, 2023 at the MMRPBA annual meeting to listen to speaker Dirac Twidwell, share a meal, and then enjoy social time and an evening dance.



Pictured are Gregory County FFA members at the Dec. 1 Summit. Back row, left to right: Jaden Swan, Cody Williams, Dawson York, and FFA Advisor Mollie Andrews; Front row, left to right: Andrew Jons and Ash Simison.

From Awareness to Action

Region's grasslands collapsing to woody encroachment

By Codi Vallery-Mills

A warning bell is ringing. And Dirac Twidell, Associate Professor in Range and Forage Sciences at the University of Nebraska -Lincoln is among those ringing it.

Twidell has spoken at numerous events, including the recent Woody Plant Control Summit and in November at the SD Stockgrowers Association Convention about the increasing loss of grasslands to woody encroachment.

Showing slide after slide of grasslands now dotted with eastern red cedars and juniper trees, Twidell's message to landowners is that it is time to take action.

Through his research with UNL he says the region's biggest grasslands – the Nebraska Sandhills – is actively collapsing. Along with it the shortgrass prairies of the Dakotas and eastern Wyoming and Montana are feeling the pressure. The Flint Hills in Kansas is also on the edge of overtake.

Twidell says technology has made it possible to track how these grasslands are changing and collapsing. "So we are able to provide data that shows the scale of collapse happening in ecosystems. Where's the leading edge of collapse in 2022? South Dakota, the Nebraska Sandhills and there are early warning signals in North Dakota and Canada."

This is concerning because grasslands have consistently been converted to cropland in the recent decades. What land escaped the plow is now facing woody encroachment and loss of grassland production for livestock and wildlife that utilizes those acres.

The loss in grasslands and actual livestock grazing acres is concerning to Twidell.

"There's no examples of stabilizing collapse at these scales anywhere in the world. So at what scale could we do it? That becomes the question. No group, no generation has dealt with the challenge of collapse. We're the

first," Twidell says.

Estimates are up to 75 percent of livestock production potential could be lost on area grasslands in the coming years.

"You don't really notice it too much when those tree seedlings are coming in. They haven't displaced the grass resource, but nothing really starts to grow under things like cedar trees and you lose that forage base. And so that takes land out of agricultural production. And what that means is this has a bigger impact than even drought years. Like this worst year of drought in Nebraska, 2011, there was a 50 percent reduction in grazing but that recovered the next year. This however is permanent."

Twidell points out that it isn't just grass that is lost, instead it is whole bio level consequences. Pollinators require grasslands. Pronghorn antelope and large mammal migrations are dependent on intact prairies. Prairie chickens and other birds require grasslands for habitat.

Also at risk? The money livestock operators put into those pastures to create viable water resources and fencing for rotational grazing plans. Twidell points out money will be lost if livestock are unable to get the needed forage production from those acres due to woody encroachment.

It's a gradual change in the landscape that is hard for landowners to recognize though. Twidell likens it to the clutter in one's garage or the graying of one's hair. They are small steady changes that result in a completely different look.

"By the time we recognize it as a problem it becomes really hard to manage," Twidell notes.

No county anywhere in the Great Plains has restored production yield after eastern red cedar or woody

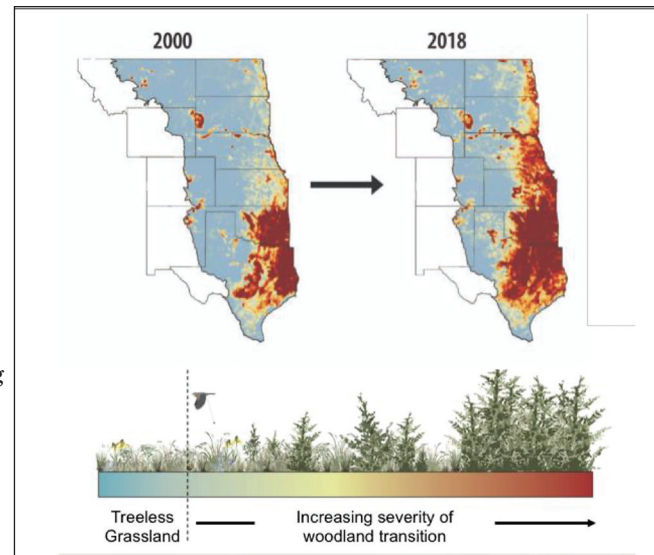


Figure 7. Woody transitions driving the impending collapse of the Great Plains grassland biome. Maps of geographic change in alternative grassy:woody biome states are available online (Rangeland Analysis Platform).

encroachment started coming in heavily and no county has ever permitted it from happening. Not a single one according to Twidell.

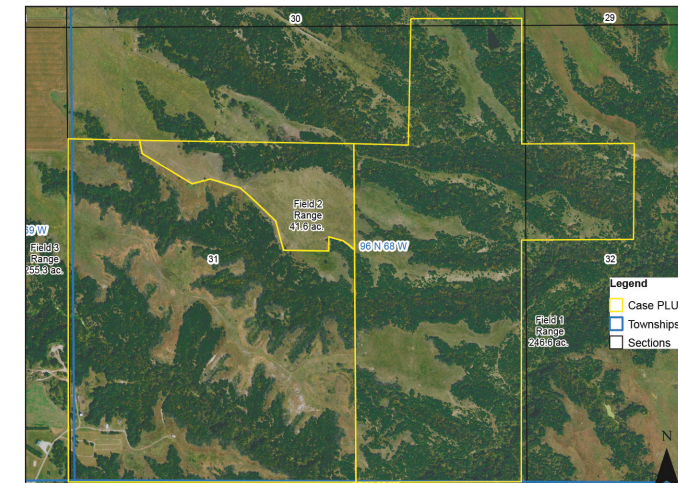
Rangelands aren't marginal land with marginal production. South Dakota grew 22 million tons of rangeland biomass in 2019. It's lost 145,000 tons in production since then. "That's not even 1 percent, but Oklahoma's up to four and a half million tons lost. So, it will take huge chunks out and we can't afford to have that resource base loss," Twidell says.

Because of that, he is asking ranchers to manage their own grassland resources to help ensure the biodiversity and production of grasslands remain positive. "In reality, we're asking them to do more than just have a vested economic interest on their land. They're in charge of main things like, like water resources and preventing wildfire danger by keeping this system productive and intact and preventing these kind of issues," Twidell says.

Taking active measures against encroachment will be necessary and Twidell says it will be up to landowners to act earlier and stabilize areas in a way that makes sense to their local area. Prescribed burns are one of the most effective tools and Twidell recommends landowners check to see if they have a prescribed burn associations or other agency they could partner with to combat woody encroachment.

Was it worth it?

Reviewing cedar control costs



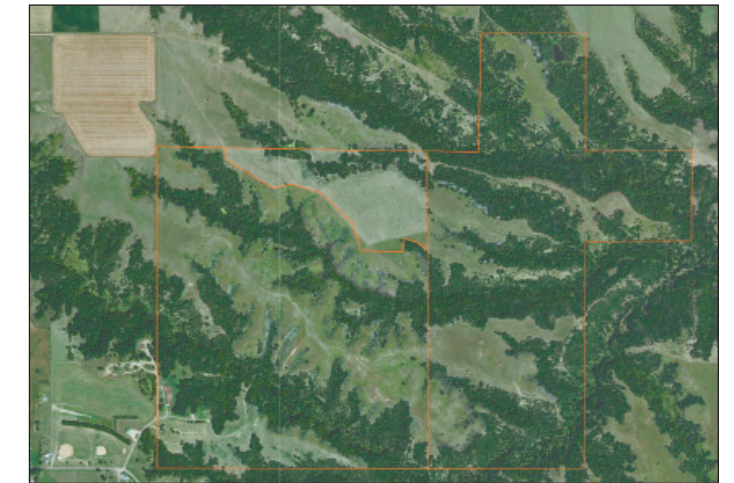
2018: Hausmann's land prior to prescribed burning.

By Tom Hausmann

Four years after my burn I did a cost analysis to see if the effort and money that myself and lots of other people put into the burn was really worth it. The two photos show aerial views of the property from 2018 before the burn and 2021 which is the latest aerial photo available. (An additional eight acres were sheared in 2022.) My out-of-pocket cost/year is also listed in Table 1.

Partnering with NRCS, the shearing, tucking, and mowing of 182 acres over six years cost me more than \$20,000. As with any investment, it always comes down to cost vs. value. Naturally, the most easily accessed acres were sheared first and produced my lowest out-of-pocket acres. I felt those acres were easily worth the cost.

Once the shearing moved to the narrower ridges that were more densely populated and more difficult for the



2021: Hausmann's land and Eastern Red Cedar control after prescribed burning.

shearers to maneuver, my cost began to rise as the chart shows. With the shearing process at \$120/hour this year, it became increasingly more difficult to justify the expense when it was estimated that only about a quarter of an acre per hour was sheared because of the tree density and difficult terrain.

So, I went from shearing and then burning as a practical, cost-effective method to the point where only enough shearing will be done in the future to create a fuel base and fire will be used as the primary means of cedar elimination. I would prefer to have the ground cleared so no tree skeletons remain. However, I don't want to pay \$480/acre to get that job accomplished on marginal land. The value of clearing the land to preserve it for our kids has a heavy emotional component for me. But investing \$480/acre is past my emotional value break point.



Tom Hausmann presenting at the Woody Plant Control Summit Dec. 1, 2022 in Chamberlain, SD.

Year	Acres Sheared	Out of Pocket \$/Acre
2017	100	\$62
2018	35	\$109
2019	0	\$0
2020	25	\$178
2021	14	\$171
2022	8	\$438
Totals	182	\$20,451

Table 1: Out-of-pocket cost/year to control cedar trees.

Firebreak strategies



IMPORTANT NOTICE

Update: MMRPBA sets new policy deadline for completing firebreaks

Hard deadline of March 1 in effect for 2023 burns

Due to the very small window to get prescribed burns done in the spring and fall, the MMRPBA is implementing a new policy on firebreaks for planned burns effective in 2023. **A soft deadline of February 1 and a hard deadline of March 1 has been set that all firebreaks must be complete on burn units planned for that year.** If firebreaks are not complete, that burn unit will go to the end of the burn list.

It's imperative that landowners have their firebreaks complete and burn units ready to go. Due to unpredictable weather conditions in the spring, the conditions for a burn may meet the prescription with very short notice. Having those firebreaks ready to go will ensure the best chances to complete the burn. If you have any questions on your firebreaks please contact Sean Kelly or any other MMRPBA board member. Thank you for your cooperation.

By Pete Bauman, SDSU Extension Natural Resources and Wildlife Field Specialist

Firebreak preparation is essential to successful fire management. There are essentially two main categories of firebreaks: hard and soft.

A **hard firebreak** is essentially one that simply will not burn and that will not allow fire to cross under normal circumstances. Examples of hard firebreaks are gravel roads, wide streams and rivers, tilled areas with mineral soil, etc. The U.S. Department of Agriculture's Conservation Reserve Program (CRP) does allow a producer to till the edges of a potential burn unit, as long as there is a conservation plan and a restoration plan in place for the tilled boundary. Tilling the edges of native pastures or other native grasslands is **never** recommended, as it destroys the native sod base, opening up the land for infestation of weeds and likely reducing long-term productivity. Where land is covered by an easement or another similar conservation program contract, tilling may violate contract conditions.

• **Tilling traditional and no-till field edges:** When burning in the vicinity of established crop fields, it is advisable to work with neighbors to ensure field edges are adequately disked or otherwise worked to the point that

fire cannot spread across the previous year's residue. This is advisable even on the edges of no-till fields, as this small investment will ensure that the fire does not escape the unit boundaries and consume the very valuable residue remaining across the entire field.

A **soft firebreak** will generally suppress the spread of fire due to a reduction in fuel load. Examples of soft firebreaks can be: mowed lines, grazed areas, narrow watercourses, pasture roads, narrow roads or any fuel change that decreases the rate of fire spread, thus giving the manager an opportunity to suppress the fire if necessary. When installing soft breaks by mowing, there are a few critical steps to consider:

• **Timing:** Mow when the grass is drying down in the fall. September through December create good opportunities, especially after the first hard freeze.



Mowed firebreak

Utilize targeted grazing for firebreaks



Pictured above is an example of a Cut and Stuff firebreak with cedar shearing and mowed firebreak at the bottom of the hill. This firebreak is on the Ryan Clockner burn unit east of Fairfax, SD. The photo at top of page 6 is also an example of a Cut and Stuff firebreak on the same Clockner unit.

• **Ground conditions:** Be careful. Wetter areas can often be mowed after frost or when the ground is firming up. Consider how wet the area will be in the spring. A soft firebreak in the spring can create many hazards with vehicles getting stuck, so plan firebreak locations appropriate to anticipated spring conditions.

• **Topography:** When possible, keep your firebreaks low on the landscape. Avoid ridges and hilltops in favor of flat or gentle slopes on the bottom of hills or near natural drainages when possible. However, if you have established trails and roads on hilltops and ridges, they can be utilized as well. If the low ground or drainages has significantly heavier fuel loads that make installation of firebreaks difficult, placement on ridges and hills may be a better option. One must always consider the predominant wind direction that he/she intends to use for the burn when making firebreak placement decisions.

• **Surroundings:** Tie firebreaks into standing water, roadways or tilled fields if available, leaving no standing fuel between your firebreak and the water. Cattails and other vegetation can be

easily smashed down with all-terrain vehicles (ATV), utility terrain vehicles (UTV) or light tractors. Additional vegetation can be mowed after freeze-up if wet ground is an issue.

• **What to avoid:** Avoid wet areas and give wide berth to areas with heavy fuels, such as brush piles, cattails sloughs or heavy grass loads. Try to keep your firebreak in light fuels.

• **Removal of mowed litter:** It is very important to remove as much litter and duff from firebreak lines as possible. Side delivery mowers (even finishing the line with a lawn mower) are great options. Raking and baling are also options. Never leave raked and windrowed litter on the firebreak, because it will create a hazard during the fire event. If the litter isn't baled, simply rake it out 30-or-40 yards into the standing grass of the fire unit. Many times, when you rake cut litter into standing grass, the windrow will eventually fall apart and spread out.

This information was excerpted from a longer article by Bauman. To read the full article on burn preparation, please visit: <https://extension.sdstate.edu/fall-time-plan-fire>



Mid-Spring firebreak



Late Spring firebreak



By Keith Hovorka and Sean Kelly

Targeted grazing incorporated into an overall rotational grazing plan can be an excellent strategy to create firebreaks. Particularly in rough terrain such as the Missouri River breaks. Grazing pasture(s) near a burn unit to reduce the fuel load available for a fire will create a soft or green firebreak.

The picture (inset) shows Keith Hovorka's burn unit from this fall's burn. He incorporated targeted grazing on the north and west sides of the unit to create a green firebreak for this fall's burn. Due to the rough terrain on those sides of the unit, mowing a firebreak would have been extremely difficult. Care must be taken to ensure enough vegetation is removed to reduce the fuel load but not so much that the range resource is permanently degraded.

Those pastures used for the firebreak along with the pasture burned are incorporated into an overall grazing plan for the ranch to ensure adequate rest for the pasture(s) to recover.

Equipment Updates

Pickup slide in spray unit developed



These pictures were taken after the unit was used at a burn and the hoses were thrown back in the pickup. The garden hose is on a hanger and the 1" when under pressure lays beside the unit so it's not as messy as it looks in the photo. The 2" hose can't be used unless all 25' is strung out.

By Brad Christensen

The MMRPBA has a pickup skid unit that we put together.

- It has a 275 gallon IBC tote for a water tank.
- It has a BE Power Equipment 2

stage fire rated pump that is capable of pumping 80 gallons per minute (gpm) and 100 psi.

- It has 25 feet of 2 inch, 25 feet of 1 inch, and 50 feet of 3/4 inch garden hose and the nozzles to go with each hose.
- It has 4 inch drain tile in the tank

to prevent slosh while driving.

- The unit has an adjustable locator tube to fit over the shorter style 2 5/16 inch gooseneck ball and 4 tie downs, one on each corner, to tie it in a pickup box or on a flatbed.
- The weight full of water, more



Mid-Missouri River Prescribed Burn Association

(Brule, Charles Mix, Gregory & Lyman Counties South of I-90)

Membership Application

Name: _____

Address: _____

City, State, Zip: _____

Home Phone: _____ Cell Phone: _____

Email Address: _____

If you own land that may be burned in the future, which county is it located in: _____

Category of membership requested: (Check one)

- Individual Membership: (May vote, dues \$25) _____
- Organizational Membership: (1 vote/organization, dues \$25) _____
Name of organization represented: _____
- Associate Membership: (No vote, no dues) _____

I wish to become a member of the Mid-Missouri River Prescribed Burn Association and agree to pay the applicable \$25.00 membership dues, certify that I have never been convicted of a felony or crime involving arson, sexual misconduct or extreme immorality and, agree to a background check.

Signature: _____ Date: _____

Return Application and Membership Fee To:

Sara Grim
35801 Old 1806th Road
Bonesteel, SD 57317

Make membership fee checks payable to: MMRPBA

than 2400 lbs., requires a 3/4 ton or larger pickup to haul it.

The skid unit has 2" cam and groove fittings on the intake and one pump outlet. The unit can draft water from a tank or pond to refill itself or other skid units. We have a 20 foot long 2" suction hose and strainer that can be used with this skid unit. Centrifugal pumps must be full of water before they will pump so there is a hand suction pump to draw water until the pump is full and will begin pumping.

The cost to put the skid unit together was about \$1,900. The IBC tote was free from a local ag chemical company and the BE pump was on sale. The unit has both a pressure and a thermal relief valve to protect the pump when the nozzles are shut off and not flowing water or when the pump is throttled down and not pumping enough pressure to open the pressure relief valve.

There is a recirculating valve to be used when the pump is throttled down and the nozzles are off, but if someone forgets to open it, the thermal relief valve will protect the pump.

The cost to build a less complicated skid unit for personal use could be less than \$1,000 if you can find a free tote and use a semi trash pump such as a Predator pump from Harbor Freight and no relief valves. You will need to open a recirculating valve to keep water flowing through the pump to prevent the pump from overheating and causing damage to the pump when you're not spraying water. There are several videos on building IBC tote-based skid units on YouTube.



Ford F-450 gifted to MMRPBA

The MMRPBA acquired a 2001 Ford F-450 truck in a generous gift from the Nature Conservancy this summer. Joe Blastick, the Prairie Coteau Conservation Manager with The Nature Conservancy in South Dakota reached out to the MMRPBA Board in the spring of 2022 regarding the truck. The Nature Conservancy did not utilize the truck for their prescribed burns any longer and thought it might be better utilized with the MMRPBA.

The truck has been a useful addition for MMRPBA. The truck is complete with shelving, power ramp, and generator. The power ramp on the rear of the truck allows for loading and unloading fire units with ease.

We did not waste any time putting the new truck to work this fall during our first fall prescribed burn. The truck works excellent for loading, unloading and storing slide-in fire units for UTV's and pickups. We will continue to work on stocking the truck with tools and materials for MMRPBA burns. *Thank you Joe and the Nature Conservancy!*



Research efforts to manage, control ERC continue

Graduate students and researchers from South Dakota State University have completed a third year of data collection regarding eastern red cedar (ERC) management goals. Research efforts have studied 1) seed/bud bank ecology, 2) ERC growth rates and spread, 3) tree moisture dynamics, and 4) survival by vegetation type and grazing intensity. Researchers have also completed some of the rancher defined projects: soil nutrient analysis; and erosion, infiltration, and runoff. A new demonstration site was established on a ranch (John Boltjes) in Charles Mix County to assess seed/bud bank, biomass as affected by tree canopy cover, and to evaluate response after fire. Following is a progress report on the targeted goat grazing research currently being conducted.

Progress report: Targeted goat grazing research findings and field day outreach by SDSU

A second year of data collection using goats for targeted grazing on eastern red cedar (ERC) management was completed in 2022 by SDSU graduate student Alanna Hartsfield.

In 2021, three grazing trials were conducted at different times: June – moderate stocking rate, July – low stocking rate, October – high stocking rate. Each grazing trial had a 4-day grazing period where goats grazed a 0.056 ha paddock each day.

Because ERC is a non-sprouting tree, the only way that targeted goat grazing can kill the tree is through complete debarking of the bark below the bottom most branch or complete defoliation of branch growing points on small trees (<50 cm tall).

For this study, the research team marked between 21 to 40 trees in each of five ERC tree height classes (<50 cm, 51-100 cm, 101-150 cm, 151-200, and 201-250 cm tall) per paddock (1 grazing day) each day of the 4-day grazing trials. After the targeted goat grazing, researchers measured the percent trunk debarked from the soil surface to the height of the browse line, the percent reduction in canopy area defoliated, and percent of tree branches browsed from the browse line. Morbidity was determined by percent of the tree volume died. Tree death (mortality) was considered equal to 100 % morbidity.

The researchers found that percent debarking of ERC trees was negatively related to forage as a percent of total intake. This suggested that goats preferred to consume herbaceous vegetation and deciduous browse

more than browsing on ERC trees. Researchers also observed this phenomenon by watching goats graze/browse. Goats would tend to consume grass, forbs, and deciduous trees first and then browse on ERC tree trunk bark toward the end of the 24-hr grazing period.

Thus, mortality rate (number of dead trees out of the total trees marked) differed by grazing trial/ stocking rate. The lowest stocking rate trial (July) resulted in the least ERC tree mortality (6.6%). The moderate stocking rate trial (June) resulted in a total mortality of 26.6% and the highest stocking rate trial (October) resulted in a total mortality of 28.5%. What was unique about the moderate and high stocking rate trials was that mortality among the height classes were different. The moderate stocking rate had a higher mortality among larger trees (>200 cm tall) at 50% mortality of the marked trees. Whereas, the high stocking rate had a higher mortality on small trees (<50 cm tall). These results need to be further investigated. Our 2022 trials will be evaluated for tree mortality in spring of 2023. The promising discovery is



that goats do kill ERC trees.

For the Summer 2022 sites, researchers established two new targeted grazing sites to further test the effectiveness of goats to control ERC trees. Site 1 was an open field of smooth brome grass and smaller ERC trees (<300 cm tall) and site 2 was a dense stand of ERC trees with Russian olive, hackberry, and plum trees and an understory of grass vegetation.

Targeted grazing using goats at Site 1 resulted in a clear difference in tree trunk debarking by ERC

tree height and canopy area defoliation. Small trees (<100 cm) were not debarked while larger trees had more bark removal from the tree trunk. These results were similar to those found the moderately stocked grazing trial from 2021 truaks. Site 2 had less debarking, but a similar canopy area defoliation trend with tree height was found. These results were also similar to the low stocking rate trial from 2021. Researchers concluded that if goats have deciduous trees to choose from, they will prefer to browse on them instead of ERC trees. Mortality will be evaluated next spring, but you can see that some trees are turning brown after being grazed (Photo inset).

In Summary: Based on two years of targeted grazing using goats to control ERC trees, we have evidence that goats can be effective. Treatment areas will be more controlled if other deciduous trees are not present. There is also good evidence that larger trees are more likely to be debarked than smaller trees and could be killed if goats debark the bark below the last branch near the soil surface. Some smaller trees may be killed if heavy tree branch defoliation removes all the growing points.

An in-person field day was held July 20, 2022 near Pickstown, SD, and highlighted using targeted goat grazing to control eastern red cedar trees. Approximately 25 attendees were at the field day, which included 12 NRCS field staff, 8 producers, and 5 SDSU Extension personnel. Participants learned how targeted grazing using goats was effective in defoliating small eastern red cedar trees and debarking larger trees. After the field day, all participants completed a paper survey and all indicated they learned something new regarding the use of targeted goat grazing to control ERC invasion.

Learn about Prescribed Fire online



South Dakota State University Extension specialists have produced 18 videos covering a variety of topics to safely plan and implement prescribed fire. The videos are hosted on the South Dakota State University Extension YouTube Channel at this link:

https://www.youtube.com/watch?v=oBtpplDYpvk&list=PLlIdDb7IZYqIHCLaYA4AuD_eW3wHmJGnH

Topics include:

Playlist position	Video title	Time
1	South Dakota Burn Laws	13 min 9 sec
2	Land Use Program Restrictions	2 min 20 sec
3	Fire Ecology - why we burn	24 min 22 sec
4	Fire Ecology - pros and cons	9 min 49 sec
5	Fire Basics - behavior	13 min 51 sec
6	Fire Basics - topographic effects	4 min 43 sec
7	Internal Hazards	4 min 35 sec
8	Fire Basics - fire breaks	9 min 1 sec
9	Tools and Resources	3 min 18 sec
10	South Dakota Weather	2 min 19 sec
11	Getting a Weather Forecast for Fire	8 min 53 sec
12	Visual Clues on Weather	3 min 15 sec
13	Fire Plan	3 min 38 sec
14	Equipment - PPE	3 min 51 sec
15	Equipment - Handtools	14 min 9 sec
16	Equipment - Machines	13 min 20 sec
17	Prescribed Burning Initial Briefing	5 min 11 sec
18	Prescribed Burning Live Fire Demonstration	16 min 46 sec



Mid-Missouri River Prescribed Burn Association
Sean Kelly
33815 288th Street
Gregory, SD 57533



On the Covers: The MMRPBA conducted a successful prescribed burn Oct. 30, 2022 on 296 acres. This was on land owned by Dwayne Schmitz and rented by Keith Hovorka. Grazed and mowed firebreaks were utilized, with Dwayne and Keith doing all the prep work on the firebreaks, and both men were present during the burn. This was the first fall burn conducted by MMRPBA, since spring burn conditions have been challenging. MMRPBA hopes to conduct more fall burns in the future.

Cover photo taken by: Melissa Schmitz
 (Dwayne's wife)



Join Us!
Annual Membership Meeting
January 15, 2023
Bonesteel Community Hall
Bonesteel, SD

The Mid-Missouri River Prescribed Burn Association is a non-profit 501(c)(3) formed to control cedar tree infestation and improve grassland health by conducting prescribed burns. MMRPBA's efforts will focus on land in Brule, Charles Mix, Gregory and Lyman Counties with the goal to conduct 2,000 acres of prescribed burns each year for the next three years.

