

ML2013 / ML2016

Project Abstract

For the Period Ending June 30, 2017

PROJECT TITLE: Conservation Grazing on WMAs in the Prairie Region

PROJECT MANAGER: Greg Hoch

AFFILIATION: MN DNR

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FUNDING SOURCE: Environment and Natural Resources Trust Fund

LEGAL CITATION: ML 2013 Chp.52 sec.2 subd.4(i) / M.L. 2016, Chapter 186, Section 2, Subdivision 18

APPROPRIATION AMOUNT: \$600,000

AMOUNT SPENT: \$457,863.42

AMOUNT REMAINING: \$142,136.58

Overall Project Outcomes and Results

The intent was to use conservation grazing as an added ecological disturbance to the traditional practice of prescribed fire. With this appropriation we were able to install permanent fence 2832 acres on eight Wildlife Management Areas. These units are near major roadways where permanent fencing is required. In more rural areas on gravel township roads we are primarily using temporary electric fencing. Those who have hunted grazed WMAs have reported a high success rate and state that they have seen an abundance of game and nongame wildlife.

Unit	Size	Fence Length
Vermillion River WMA	160 acres	10,770 ft
Fergus WMA	253 acres	17,040 ft
Doran WMA	544 acres	36,650 ft
Rothsay WMA	100 acres	6,740 ft
Barnesville WMA	125 acres	8,420 ft
Sem WMA	417 acres	28,090 ft
Regal Meadows WMA	502 acres	25,470 ft
Hole in the Mountain WMA	731 acres	41,400 ft
TOTAL	2,832 acres	174,590 ft

We did do some pre-grazing data collection on some sites as well as assessments to determine if grazing was a suitable management tool for a WMA. The conservation community (DNR, FWS, TNC, others) is still working to develop monitoring protocols that can be shared that meet multiple uses. Some of the monitoring was simply comparing different methods and protocols to decide on a plan for moving forward with large-scale monitoring under the Prairie Plan. This was a much more challenging issue than anticipated and this work continues.

Due to staff turnover in the DNR and after continued conversations with educators we were not able to complete any of the education component of this project.

Project Results Use and Dissemination

We have used several outreach strategies for our overall conservation grazing initiative. DNR staff have published articles on conservation grazing in three national and one statewide magazines (Pheasants Forever, Ducks Unlimited, American Waterfowler, and Minnesota Conservation Volunteer). DNR staff have also given talks at the Minnesota State Cattlemen's Association and have worked with USFWS staff to present at Pheasants Forever state conventions. We have also devoted entire afternoons to fencing/grazing issues at the last DNR Wildlife School. This fall, the Wildlife Chief (Paul Telander) and Prairie Habitat Supervisor (Greg Hoch) will visit with each DNR Region to encourage more grazing on WMAs.



Environment and Natural Resources Trust Fund (ENRTF) M.L. 2013 Work Plan

Date of Status Update Report:

Date of ~~Next Status Update~~ Final Report: August 22, 2017 (Nov 30, 2017)

Date of Work Plan Approval: June 25, 2013

Project Completion Date: July 1, 2017

Is this an amendment request? NO

PROJECT TITLE: Conservation Grazing on WMAs in the Prairie Region

Project Manager: Greg Hoch

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Location: Prairie Core, Corridor, Corridor Complexes and Agricultural Matrix

Total ENRTF Project Budget:	ENRTF Appropriation:	\$600,000.00
	Amount Spent:	<u>\$457863.42</u>
	Balance:	<u>\$142,136.58</u>

Legal Citation ENRTF Appropriation: ML 2013 Chp.52 sec.2 subd.4(i)
M.L. 2016, Chapter 186, Section 2, Subdivision 18

Appropriation Language:

(i) **Conservation Grazing to Improve Wildlife Habitat on Wildlife Management Areas**

\$600,000 the first year is from the trust fund to the commissioner of natural resources to develop grazing plans and provide infrastructure to support conservation grazing on up to 10,000 acres of targeted wildlife management areas in partnership with local livestock producers. Any revenue generated as a result of this appropriation must be reinvested in producing plans, conducting maintenance, or building infrastructure for new or existing conservation grazing efforts. This appropriation is available until June 30, 2016, by which time the project must be completed and final products delivered.

Carryforward: (a) The availability of the appropriations for the following projects are extended to June 30, 2017: (3) Laws 2013, chapter 52, section 2, subdivision 4, paragraph (i), Conservation Grazing to Improve Wildlife Habitat on Wildlife Management Areas;

I. PROJECT TITLE: Conservation Grazing on WMAs in the Prairie Region

II. PROJECT STATEMENT: Periodic disturbances, such as grazing and fire, are necessary to invigorate grasslands. While fire has been used for decades, DNR Wildlife Managers are beginning to use conservation grazing as a management tool to increase habitat diversity for the benefit of game and nongame wildlife. Many suitable grazing areas lack boundary fencing. This project will provide needed infrastructure to implement conservation grazing on 5,000 acres of targeted Wildlife Management Areas (WMAs). We will prioritize the original 10,000 acres to 5,000 acres through the implementation process and will increase acreage up to 10,000 acres, funds permitting.

Grazing animals were a crucial part of the original prairie ecosystem. Grazing increases the diversity in the plant community and provides structural diversity. The shorter grass of grazed areas enhances habitat for several prairie obligate birds of high conservation interest, including greater prairie chicken, marbled godwit, upland sandpiper, western meadowlark, loggerhead shrike, and chestnut-collared longspur. Grazing infrastructure will provide the capability to use grazing as a management tool (5,000 acres represents less than .05% of the WMA acreage). With the option of grazing on state grasslands, wildlife managers can form agreements with livestock producers to rest their pastures thus improving the quality of habitat on private lands. These public-private partnerships will benefit local economies and habitat.

The DNR sees conservation grazing as a tool by which wildlife management objectives can be accomplished with reduced costs and at a landscape scale which is additive to our other management tools such as fire. This is not about producing more or heavier cows but rather achieving management objects such as increasing plant and structural diversity which in turn increase insect abundance which increases wildlife productivity of both game and nongame species.

It is important for the public (DNR) to own the permanent infrastructure on WMAs. Permanent fencing, gates, etc. is necessary on the perimeter of units to ensure that sound, safe and hunter friendly conditions exist both at the time of grazing as well as when the parcel is being rested. While the public needs to maintain control of permanent perimeter infrastructure we will expect producers to provide, install, maintain and remove temporary infrastructure such as internal temporary fence, watering devices (when necessary), salt licks, portable corrals, etc.

There are two options for developing grazing agreements with producers; Cooperative Farming Agreements (a bartering system) and cash leases via a competitive bid process. CFAs exchange work for grazing rights. In addition to installing and maintaining temporary fence, monitoring grass conditions, and moving cattle between paddocks, cooperators may be asked to install food plots, spray weeds, etc. With CFAs no money exchanges hands. This is the mechanism that has been used in the past to accomplish much work on WMAs.

With a cash lease system producers competitively bid for grazing rights. This system has not been used previously by DNR. There appear to be both pros and cons to this method and we believe that it is worth trying. Pros include: 1) Generating revenue that can be reinvested into the grazing program with the goal of becoming financially self-sustaining, 2) The Minnesota Cattleman's Association has asked us to make this option available, 3) There is a "fairness" (real or perceived) about going out for bid. Con's include having potentially different grazers to work with each year rather than developing a long-term relationship built upon trust and the desire for future mutual benefit and, the necessity of tracking and proportionally allocating revenue back to one or more funding sources. We do expect that there will not be significant revenue generated through leasing, as producers will be expected to install and maintain temporary fence, monitor grass conditions and move cattle

from paddock to paddock just as we would with a CFA. These work expectation will very likely reduce bid amounts.

The goals and outcomes of this project include the following:

- 1) Improve habitat quality; reduce management costs; replicate natural processes/disturbances to increase natural diversity through the careful and well-timed placement of livestock on WMAs.
- 2) Increase the amount of grazing on state WMAs from the current 10,179 acres to approximately 15,000 acres. Our long-term goal is to have conservation grazing on 50,000 acres.
- 3) MN WMAs belong to the public and must be managed to maintain their long-term ecological integrity. Therefore, grazing will occur where it is most needed to achieve management objectives.
- 4) Provide economic benefits to local grass-based livestock operators and beginning/organic farmers.
- 5) Provide private jobs through contracts for installing the fencing and other needed infrastructure.
- 6) Monitoring will be instituted on a sample of grazing sites in order to provide information that will inform the development of grazing plans that ultimately result in desired ecological conditions.
- 7) Monitoring will also provide information critical to ensuring that adverse impacts are minimized. Conservation grazing needs to be managed to ensure that overgrazing does not occur. Overgrazing may cause erosion, habitat destruction, soil compaction, or reduced biodiversity. Grazing will be terminated when necessary.
- 8) Minimize the potential for invasive species.
- 9) Develop a conservation grazing curriculum that meets high school science standards for agricultural education students.

See Attachment B for Restoration and Enhancement Reporting information.

III. PROJECT STATUS UPDATES:

Project Status as of December 31, 2013:

Money has been allocated to appropriate accounts. Habitat objectives are being identified and conservation grazing plans are being written; contact has been made with FAA teachers at statewide convention; research protocols to monitor habitat changes are being refined, LCCMR project funding has been promoted at numerous conferences, events, and in the media. One large project location, Pittman-Robertson, was dropped due to complications with final acquisition. Additional sites were confirmed to replace this site: Regal Meadows WMA, Swan Lake WMA-Courtland Middle Unit, Ras-Lynn WMA, Lane WMA, and Burbank WMA. One additional site, Hole in the Mountain WMA has been reviewed and discussed with DNR entomologist and ecologists due to the presence of Dakota Skipper butterfly, a State threatened species that has been proposed for Federal threatened status. This WMA will likely be a research monitoring site as part of the proposed LCCMR Imperiled Prairie Butterfly Conservation, Research, and Breeding Program with Robert Dana.

Amendment Request 6/30/2013:

Amendment Approved: Oct. 28, 2013. This amendment request is to reallocate funds from reduced direct and necessary support services costs. Funds totaling \$5,924 are reallocated to personnel. Direct and necessary costs totaling \$38,203 are split between activities 1, 2, and 3.

Amendment Request 12/31/2014:

Amendment Approved: 01/03/14. This amendment request is to clarify the term “computer services” used in the equipment row of the budget table on page 9. A new laptop computer to be used by the monitoring biologist will be included in this budget item. The expected data sets associated with the Grazing Monitoring project will be so large that the data storage and processing speed of the monitoring biologist’s current DNR issued computer is not sufficient. The software required for these types of analysis requires more processing speed and data storage than a typical lap-top.

Project Status as of: Aug. 31, 2014

Money has been allocated for the new biennium. Grazing signs have been ordered and delivered with the LCCMR logo, several grazing plans have been completed and others are in-progress along with fencing specifications. One project site has completed the bid process for fencing and fencing will be installed this fall. As grazing plans and fencing specifications are completed we have determined that a few of our initial sites are unsuitable for grazing at this time. Caribou WMA (1,100 acres) was dropped because there was not adequate ecological justification that grazing would benefit this fairly pristine area. Eldorado WMA (320 acres) and Wilts WMA (80 acres) were both dropped because it was determined that the fencing needs by DNR standards were cost prohibitive due to numerous wet areas. The following areas have been added to replace these locations: SEM WMA (330 acres), Vermillion River WMA (160 acres), Edward Raymond Mohs WMA (54 acres), and Save the Wetlands WMA (60 acres). Additional acres will be completed at Pomroy Pastures WMA, Burgen Lake Prairie WMA and/or Holy Cow WMA as funds allow. Staff is investigating the best solar watering systems.

Grassland monitoring and evaluation has begun with clipping analysis to help managers determine when livestock should be removed from a site. Additional efforts are looking at using grazing to control wild parsnip and using grazing as a tool for overseeding low diversity sites with a high diversity seed mix.

Discussions have been held regarding the scope for a curriculum writer and best contracting method. With more and more schools moving to laptops and iPads, development of an App(s) may be needed more than a traditional curriculum.

Project Status as of: Dec. 31, 2014

There are no project location changes to report at this time, although a few sites adjusted the number of acres after completing unit grazing plans or fencing specifications. All grazing plans are now completed with the exception of the Edward Mohs WMA. They intend to complete the plan later this winter. With the completion of the grazing plans, bids can be let this winter/spring and by summer/fall of 2015 fencing can begin to be installed. Once the contracts have been let, we will have a more exact estimate of any remaining funds. The sites on the alternate locations may then also be proposed as funding permits. It is likely that we will be able to do additional sites with the remaining funds.

AMENDMENT REQUEST (1/8/16)

We are requesting a change in Project Manager from Mike Tenney to Greg Hoch, which reflects staff changes in the DNR. We are also requesting an extension of the grant to 31 Dec 2016, an additional 6 months. As with any new program, there have been several issues with getting the program started and fully operational. It has taken longer than expected to develop grazing plans and fencing guidelines. We are currently revising the existing grazing guidelines. In some parts of the state we are also having issues with finding available contractors to do the installation. The DNR Contract Coordinators feel that if they can have the late summer and fall of 2016, they will be able to spend down the entire grant.

LCCMR approved amendment request to change the project manager 1-11-2016. Request to extend the date is under further consideration. (1/11/2016)

Project Status as of: Aug. 31, 2015

Project Status as of: Dec. 31, 2015

Project Status as of: August 30, 2016

Project Status as of: Dec 31, 2016

We have fenced 5 WMAs in the last year and developed grazing plans for these sites. We continue to work with Kelly Anderson, MDA, on our grazing plans throughout the state. However, Wayne Monson has fully retired and Mark Hayek, NRCS, has taken a new position in North Dakota. This has slowed us a little but we continue to move forward. Monitoring continues to be an issue for us. The initial plan was to get the fence up immediately and then monitor the results over the following 3-4 years. The Prairie Habitat Team hired a new Habitat Biologist this spring with a specialty in grassland pollinators, especially butterflies and moths. She is currently working on two federal research grants to be submitted in Jan and Feb. Grazing will be integrated into these projects. Greg Hoch published his fifth article on conservation grazing this fall. Greg and JB Bright (USFWS) gave a talk at the MN Cattlemen's Association in December and Greg will continue to work with Ashley Kohls of the Cattlemen's Association.

Project Status as of: March 9, 2017

There are no new updates since the Dec 31, 2016 update.

Project Status as of: A final report and associated products will be submitted between June 30 and August 15, 2017 as requested by the LCCMR.

Final Project Status: August 17, 2017

This project obviously had mixed results. We were able to fence a total of 2832 acres on eight WMAs. Construction costs were much higher than initially anticipated. We had difficulties with contractors backing out at the last minute. As described in earlier reports, Area Managers were dealing with pressure from hunters. However that seems to be dissipating. We also had to deal with issues such as use of fencing standards, veterinary insecticides, etc which slowed progress in the initial years. There was also significant staff turnover at a number of positions related to this appropriation.

We did use the Prairie Plan to guide these efforts. Most of the sites were within Prairie Plan Core Areas or Corridors (Attachment 1). However, there were two opportunities to implement grazing outside these focus areas. The Plan guides, but does not limit our activities.

We had planned to do a significant amount of monitoring with this project. Due to staffing shortages and staff movement that unfortunately didn't happen. We had hoped to get the fence up quickly and then spend the remaining time under the appropriation monitoring. Getting the fencing installed took much longer than expected and we did not get any post-grazing monitoring done. However, we still take monitoring seriously and outcome monitoring is becoming a focus of the LSOHC. DNR and partners were recently approved on a USFWS grant to focus on monitoring under the umbrella of the Prairie Plan. DNR partnered with Audubon and other NGOs to submit a NFWF grant last week (8/17/17) specifically for monitoring grassland bird responses to conservation activities.

Greg Hoch was able to conduct one clipping study before moving to St Paul (Attachment 2). This study will help managers decide when to introduce and remove livestock to meet specific habitat objectives. Details are included in the attachment.

Grazing is new to grassland management/conservation in Minnesota and there were significant growing pains as we worked to get the program up and running. These funds, although we weren't able to implement them fully, will be very helpful to the long-term efforts in the DNR.

We did have one outstanding bill for 2,845.50. This invoice was cancelled and these dollars will be returned to LCCMR in the near future in addition to the \$112,000 returned earlier this summer.

IV. PROJECT ACTIVITIES AND OUTCOMES:

ACTIVITY 1: Sufficient infrastructure will be installed on WMAs to allow private livestock producers to graze approximately 5,000 acres in the prairie region for wildlife management purposes. We will increase acreage, up to 10,000 acres, funds permitting. Infrastructure may include permanent perimeter fence, gates, hunter access points, fencing around sensitive areas, water sources, etc. However, not all of these will be needed at each site. Grazing plans will be developed for each site that identifies wildlife management objectives and the grazing prescriptions that will achieve them. Parcel scale maps will be developed during the planning process.

Description:

The DNR has started a conservation grazing program that is in the early phases of implementation. Conservation grazing is part of a comprehensive strategy for landscape management. We are using grazing as a management tool, just like we use prescribed fire, invasive species management, and brush and tree removal. The key thing to remember about this grazing is that it is conservation oriented and is being driven by us. We are not “opening up” our WMAs to cattle grazing. Cattle can be used for a variety of grassland objectives, but our primary goal is to improve wildlife habitat by increasing plant diversity and structural diversity. Because this grazing is for the benefit of public land, we believe that it is important that permanent fence be paid for and owned by the state, so it is clear that the fence is the property of the agency. We are using a variety of funding sources to accomplish our goal of 50,000 acres of conservation grazing. The geographic focus of the 2014 LCCMR funds are in the priority areas of the Minnesota Prairie Conservation Plan.

Since 2011, the DNR has been working cooperatively with TNC, USFWS, NRCS, MDA, MN Cattlemen’s Association, University of Minnesota, and Pheasants Forever to lay the groundwork for conservation grazing in Minnesota. Through this work group we have developed:

- 1) A Wildlife Management Area Grazing Operational Plan (statewide),
- 2) A Template for Conservation Grazing on public land (for individual units),
- 3) A new Grazing Lease form that address issues specific to grazing such as liability, invasive species, and livestock control.
- 4) A new Agricultural Lease Rate was approved and Conservation Grazing Deductions sheet was developed to insure fairness and that we are around the market rate of private land.
- 5) A Fencing standards document was developed that insures quality design and construction.

Before any LCCMR money is spent on fencing materials, each WMA will have a grazing plan that will identify/mitigate any native prairies, rare features, or sensitive areas. These plans also address contingency plans and monitoring. One of our goals in working with private producers is to encourage them to have grazing plans on their own land and to rest their pastures while grazing public land. In this way we are improving habitat on private land and on public land at the same time.

Summary Budget Information for Activity 1:

ENRTF Budget: \$ 523,628
Amount Spent: \$ 453,096
Balance: \$ 70,531

Activity Completion Date:

Outcome	Completion Date	Budget
Grazing infrastructure will be installed. - Fence approx. 64 mi @ \$1.30/ft. See map for examples of number of miles of fence required for some projects and the number of	June 30, 2017	\$523,628

<p>acres that will be enclosed.</p> <ul style="list-style-type: none"> - Solar panels that provide energy for boundary and internal fences as well as water pumps in remote locations - Gates where necessary - Hunter access points which allow hunters to pass easily and safely but prevent cattle from escaping (For example a “zig-zag” in the fence) <p>Identify the conservation objectives (wildlife focus) and develop grazing plans. Parcel scale maps will be completed during planning.</p> <p>Grazing agreements will be executed with private livestock producers (mainly beef cattle and cow/calf).</p> <p>Approximately 5,000 acres of public land will be grazed to enhance habitat, up to 10,000 acres, funds permitting.</p>		
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Activity Status as of: Sept. 12, 2013 communication was sent to all LCCMR Conservation Grazing site managers outlining the next steps they are to complete including a general timeline and cost coding information. DNR is in the process of implanting the ENTERPRISE Data Management system but it is not completely integrated yet. Several meetings have been held on how best to integrate conservation grazing acres. Eventually this data will be easily mapped as well.

Activity Status as of: Dec. 31, 2013 – The July 1, 2013 Funds were set up in four accounts for use by two regional contract staff (Region I & IV), research staff, and central office contracts. In early July, the NRCS and MDA Grazing Specialists were sent the DNR Conservation Grazing Plan template and notified that WMA managers will be contacting them. Nov. 15, 2013 a conference call was held with Grazing Specialists to update them on DNR grazing requirements and to answer questions. Parcel scale maps were developed for all grazing areas to be funded.

Activity Status as of: Aug. 31, 2014

Grazing plans and fencing plans are being completed. No fences have been constructed yet, however, the Vermillion WMA project specifications should be offered for bid in September, completion planned by June 30th 2015. More discussion on solar watering systems has occurred. The NW Regional Habitat Project Supervisor fabricated a portable solar panel/control box trailer out of a light duty utility trail. We have received spec’s and pricing information from Common Sense MFG, Inc. on watering trailers with built-in tanks, solar panels and different pump combinations.

The three projects that were dropped were after lengthy discussions. We are holding these LCCMR projects to the highest standards. We have had ongoing discussions with the USFWS about Hole-in-the-Mountain WMA which has been identified as critical habitat area for Dakota Skipper. Conservation Grazing is preferred to manage these important areas as many essential flowers species needed by the Skippers are grazing tolerant/increasers

For further information on the special rule and how it might affect 'routine livestock ranching activities, please see: - http://www.fws.gov/midwest/endangered/insects/dask/PropListDASK_POSKfaqsOct2013.html - and searching for "special rule."

As part of our concern for endangered butterflies, beneficial pollinators and dung beetles, DNR in cooperation with the USFWS, U of M, Board of Animal Health, MDA and MN Cattlemen’s Association has developed Dewormer/Insecticide Guidelines. These guidelines recommend best practices to minimize impacts to terrestrial

and aquatic invertebrates while still providing adequate livestock health benefits. We recognize that if livestock are tormented by flies their natural bunching behavior will not achieve our grazing goals.

The five new locations that will replace the three that were dropped are mainly in the Prairie Plan core area or agricultural matrix. SEM WMA is being managed for sharp-tail grouse and we are seeing excellent results at Lac qui Parle with grazing and improved sharp-tail grouse habitat. Two new sites are in central Minnesota. The Vermillion River WMA fencing project is on a recently acquired 160 acre parcel adjoining the main unit. We also have three WMAs on the waiting list if funds remain after the completion of these sites. See below for site-specific updates.

Activity Status as of: Dec. 31, 2014

The biggest update of this reporting session is that nearly all of the unit grazing plans have now been completed and approved. This winter the Contract specialists can send out bids for fencing projects and site prep and construction can begin this coming summer and fall.

Region 1 Contract Specialist - received shape files and descriptions for one fence in the Fergus Falls Area on Fergus Falls WMA. He will be writing spec's for it very soon. Fergus Falls Area has a second grazing plan finished, along with the perimeter alignment and the contract specialist can package the two in one advertisement

Region 3 Contract Specialist did solicit bids for the Vermillion WMA Fence but the contractor backed out. We have not decided on the next move for this project but we will likely advertise for bids once more and hope a local contractor is successful.

Region 4 Contract Specialist - has not worked on any fencing contracts for the LCCMR projects this fall, as no managers were ready to put them out for bids.

See below for site-specific updates.

Activity Status as of: Aug. 31, 2015

Activity Status as of: Dec. 31, 2015

Expenses from fence construction during the time period 1/1/15 to 12/23/15 total \$90,734.08 statewide and include the following, broken down by region:

Region 1 has spent \$69,671.58 so far this calendar year on projects in the Fergus Falls and Thief River Falls work areas . This amount represents partial payments for active contracts that are still being completed. The balance remaining on these contracts is \$152, 948 and I believe they are on track to be fully completed by the end of FY16. Project sites include: **SEM WMA, Fergus WMA, Doran WMA, Rothsay WMA, and Barnesville WMA**. Total acreage for those sites should be in the neighborhood of 1709 acres. There will be additional expenses for some of those sites for energizers/solar/watering equipment/etc.

Region 2 No projects

Region 3 spent \$21, 062.50 on the fence at Vermillion River WMA (160 acres fenced). This work was completed in spring 2015.

Region 4 has spent \$0 since last report. One solicitation was made for Courtland Middle but timing/weather conditions made prices too high to award. Assuming an extension is granted, efforts in 2016 will focus on re-bidding Courtland Middle and bidding out the Hole-In-Mountain project. If sufficient funds remain for a 3rd project, it will likely be Burbank WMA in Kandiyohi Co. or Save the Wetlands in Faribault Co.

Additional Accomplishments include:

We are currently working with the USFWS to make sure our fencing guidelines are similar. There are some producers who may be grazing both WPAs and WMAs and similar guidelines will minimize confusion for them. We have also developed new guidelines for selecting cooperators. We revised grazing agreements to correspond with the new listing of the wolf. We worked with DNR IT staff to get our grazing agreements into the states LRS (Land Record System) so our grazing management can be integrated with other management activities. We developed a new policy for grazing insurance for the cooperators. We built a grazing lease

template for DNR staff. We finalized the insecticide/parasiticide guidelines for chemical use before livestock are released on WMAs and during their time on the WMA.

Activity Status as of August 30, 2016

Activity Status as of Dec 31, 2016

We were able to fence 5 WMAs and have contracts in place for two additional fencing projects this winter/spring. We continue to work with DNR IT staff on a range of grassland management topics, including grazing. This will both facilitate tracking accomplishments as well as landscape level research and evaluation projects done under the umbrella of the MN Prairie Plan. This fall we applied for a National Fish and Wildlife Foundation (NFWF) grant to fund a support staff for our grazing program. Although our proposal scored well, it just missed the funding cut. We will continue to look for additional funds to support this program. Although not successful, the time it takes to put a grant proposal together shows our interest and commitment to this program.

Project Status as of: March 17, 2017

There are no new updates since the Dec 31, 2016 update.

Site-Specific Updates:

Fergus Falls WMA:

12/31/14 - grazing plan and fencing plan complete. The final acreage in three grazing units is 270 acres. The Fergus plan required some revamp, actually rewritten after consulting with the road authorities regarding easement boundaries. Tree removal along fence corridors has been proposed as a STS project. Consultation with local well drillers and the city of Fergus Falls has been made regarding getting a reliable quality water source.

8/31/14 - 2 grazing plans completed, two fencing plans completed, exploring some water source options for eastern most paddocks.

12/31/13 - One of 2 grazing plans completed, field visits completed, water supply researched

Barnesville WMA:

12/31/14 - Fencing plan completed, grazing plan should be complete by end of December - Papesh
1.85 miles of fence and 135 acres

8/31/14 - Fencing plan completed, grazing plan in progress.

12/31/13 - Field visit with Wayne Monsen, MDA Grazing Specialist, last summer, working on grazing/fencing plan.

Doran WMA:

12/31/14 - grazing plan writing in progress, it should be completed by Dec 31st. The site will have 5.5 miles of perimeter fence for 531 acres

8/31/14 - fencing plan in progress.

12/31/13 - Began Doran WMA fencing section of plan mid-Dec.

Rothsay WMA:

12/31/14 - grazing plan in progress, it should be completed by Dec 31st. There are two grazing units with total acreage of 270 acres and 4.5 miles of fence.

8/31/14 - multiple site visits, preliminary planning thus far.

12/31/13 - Field visit but nothing else at this point.

Neal WMA:

12/31/14 - Grazing Plan largely complete, need to field check site and finalize grazing boundaries. TNC parcel has been acquired by DNR, so its potential as a grazing site is no longer contingent on the sale. It's a done deal.

8/31/14 - Kelly Anderson, MDA Grazing Specialist, has completed a draft grazing plan for the Neal Grazing Site. She is waiting for the new wildlife supervisor to get familiarized with the site make some decisions on how we are going to deal with the watering issues, fence location, the TNC property addition and our decisions on what additional management objectives need to be accomplished to reconstruct the site.

12/31/13 - Field visit, grazing plan to be written this winter.

Lac qui Parle WMA:

12/31/14 -The grazing operation plan for the Rieppel Tract has been substantially completed and will go out for internal review in mid-January for final approval. Fencing specifications are being formalized and outside non-profits will be reviewing the fencing specifications and offering suggestions in early spring. We anticipate fence construction fall of 2015.

8/31/14 -two required grazing operation plans are near completion and should be available for internal review in October. Field staff continues to fine tune required infrastructure needs for each site taking into consideration lessons learned with the 2,800 acre patch burn grazing project. Assessments include available water sources, water infrastructure needs, fence type, sensitive areas, wildlife and native plant communities, hunter access entry points, and location relative to active livestock operations.

12/31/13 -Two individual 600+ acre native prairie tracts are being assessed to determine which single parcel will move forward in the LCCMR conservation grazing initiative. The ongoing assessment includes infrastructure needs (fence and watering system options), plant community, wildlife community, potential hunter concerns, visitor entry points, and location relative to active livestock operations. Grazing specialist, Wayne Mosen, was consulted and is assisting in this assessment and Greg Hoch, DNR ecologist, has been contacted relative to future monitoring. We plan to make a final determination this winter and begin writing the grazing plan at that time.

Save the Wetlands WMA:

12/31/14 - We have drafts of all 4 Nicollet grazing plans, still working out some of the details of the plans. This winter we will be contacting graziers where we do not have cooperators, and begin working with Prairie Contract Specialist to develop bid packets. We will be completing tree removal on 2 sites this winter and spring and a Rx burn on another site.

8/31/14 - Draft plan map developed with quantities; Grazing specialist contacted; contact and coordination made with neighbor grazier.

Ras-Lynn WMA :

12/31/14 - We have drafts of all 4 Nicollet grazing plans, still working out some of the details of the plans. This winter we will be contacting graziers where we do not have cooperators, and begin working with Prairie Contract Specialist to develop bid packets. We will be completing tree removal on 2 sites this winter and spring and a Rx burn on another site.

8/31/14 - Draft plan map developed with quantities; Grazing specialist contacted; contact and coordination made with neighbor graziers; funding available for survey, surveyors not contacted yet.

Lane WMA :

12/31/14 - We have drafts of all 4 Nicollet grazing plans, still working out some of the details of the plans. This winter we will be contacting graziers where we do not have cooperators, and begin working with Prairie Contract Specialist to develop bid packets. We will be completing tree removal on 2 sites this winter and spring and a Rx burn on another site.

8/31/14 - Draft plan map developed with quantities; Grazing specialist contacted; Old South Fence Removed; no local grazier identified yet

Swan Lake WMA Courtland Middle Unit:

12/31/14 - We have drafts of all 4 Nicollet grazing plans, still working out some of the details of the plans. This winter we will be contacting graziers where we do not have cooperators, and begin working with Prairie Contract Specialist to develop bid packets. We will be completing tree removal on 2 sites this winter and spring and a Rx burn on another site.

8/31/14 - Draft plan map developed with quantities; Grazing specialist contacted; contact and coordination made with neighbor grazier; Tree removal contract to be completed this winter to facilitate fencing.

12/31/13 -Started on the grazing plans in mid-Dec.

Hole in the Mountain WMA:

12/31/14 - the grazing plan has been completed and reviewed by Lance Smith- NRCS, Fred Harris and Robert Dana- MBS. We are also meeting with local sportsman's group and CFA farmer in January to keep them informed on management decisions. Lance Smith volunteered to help with some initial evaluation work this summer- check water sources, vegetation sampling etc., to help get more baseline information and help with

future infrastructure needs. We have a list of possible cattle producers and will need to have a meeting with them sometime to discuss management options, ideas, issues, and concerns for this property.

8/31/14 - Discussion with USFWS regarding Dakota Skipper/Powesheik Skipperling; project still in the works. USFWS prefers conservation grazing to fire for this critical habitat.

12/31/13 - Communicated with Lance Smith, local NRCS grazing specialist regarding plan writing for the site. Conducted field visits this summer to assist with plan writing that included water supply issues, old interior fence that needs removed, challenges with food plots within the WMA, and how to set up the paddocks given the terrain, water sources, food plots and sensitive plant areas. Collaborating with Eco staff for monitoring vegetation before and after grazing activities and setting up research exclosures. Collaborated with Joe Blastick from TNC, regarding working together on grazing plans/rotations since their land abuts the WMA to the north.

Burbank WMA:

12/31/14 – Final grazing plan should be approved by early January. There will be 4 gates and the water source will be a portable tank with solar pump

8/31/14 - Worked with Kelly Anderson to draft grazing plan; determined paddocks and watering needs (pump from river). Met with Kelly Anderson on site 7/28/2014 to review the draft plan and ground truth various aspects.

12/31/13 - Met with Kelly Anderson, MDA Grazing Specialist, to discuss goals and grazing plan specifics. Conducted field visits to get a good baseline of current condition in summer/fall of 2013. Identified a suitable water supply (Middle Fork Crow River). Spoke with nearby cattlemen to see if there is interest in grazing this WMA. Touched base with Greg Hoch, DNR ecologist, regarding monitoring and will follow-up with him. He did express some interest. We elected to not construct fencing on the remnant prairie tract on the north end of the unit. The amount of acres vs. the length of perimeter fence rendered this option not cost effective.

Regal Meadows WMA:

12/31/14 – Making a few more edits to grazing plan and it should be completed and approved soon. There will be 6 gates and the water source will be a portable tank with a solar pump.

8/31/14 - Met with potential cooperater 6/2/14; discussed prospective water needs. Met with Kelly Anderson on site 7/28/2014 to review the draft plan and ground truth various aspects.

12/31/13 - Met with Kelly Anderson, MDA, to discuss goals and grazing plan specifics. Some of this unit is newly seeded and will not be grazed immediately. It will take time to mature and the management objectives will evolve along with the established cover. Conducted field visits to get a good baseline of current condition in summer/fall of 2013. This includes monitoring of a spring 2013 brome conversion seeding. A suitable water supply was identified, the perennial water in ditch near the center of the unit. Spoke with nearby cattlemen to see if there is interest in grazing this WMA. Greg Hoch has been contacted regarding monitoring and has expressed some interest.

Edward Raymond Mohs WMA – Sauk Rapids:

12/31/14 – manager intends to write the unit grazing plan later this winter.

8/31/14 - Fencing requested for low complexity paddock consisting of 54.11 acres.

Vermillion River WMA – Adelman 160:

12/31/14 - . We did contract out the Vermillion Fence and the contractor just backed out on 12/15/14. DNR will have to rebid later this winter.

8/31/14 - Kelly Anderson, grazing specialist, completed the grazing plan 6/28/14. Objectives include providing habitat for sandhill cranes and bobolinks. A local grazer is lined up. This is a low complexity paddock with water available in pre-existing dirt tanks/ponds.

SEM WMA:

12/31/14 - A site visit to the SEM WMA proposed grazing units was done in summer 2014. Present at the time were Doug Franke and Becky Ekstein with DNR, Mark Hayek from the NRCS, and the potential producers. Becky Ekstein and Donovan Pietruszewski made a second site visit in the fall.

Thief River Falls has completed the grazing plan for the 5 units on SEM WMA. The plan was written by Becky Ekstein, reviewed by Mark Hayek (NRCS), Fred Harris and Doug Franke. Doug signed the plan as approved. We are now working on a lease for the neighboring producer.

Since the initial discussions began on this project another unit totaling 70 acres of State land was added. I updated the spreadsheet from 330 acres to 344 acres. We also updated the estimated amount of fencing needed (6 miles) and included what other infrastructure we estimate will be required. At this time we are opting for dugouts with water pumped to tanks as our water source. We will need SHPO and possibly WCA review.

8/31/14 - This WMA is in Marshall County adjacent to the Prairie Plan Espelie Core Area. Managers are beginning to write the grazing plan working with the local NRCS grazing specialist. One of the key objectives is to improve sharp-tail grouse habitat. Approximately 4.5 miles of fence will be needed and some additional watering areas will be needed.

Aug 17, 2017 A total of 174,590 linear ft of perimeter fence was constructed on 8 WMAs covering 2832 acres for a total fence construction cost \$453,100 (averaged \$2.59/linear ft). The approximate amount of fence and acres covered per WMA are as follows:

Unit	Size	Fence Length
Vermillion River WMA	160 acres	10,770 ft
Fergus WMA	253 acres	17,040 ft
Doran WMA	544 acres	36,650 ft
Rothsay WMA	100 acres	6,740 ft
Barnesville WMA	125 acres	8420 ft
Sem WMA	417 acres	28090 ft
Regal Meadows WMA	502 acres	25,470 ft
Hole in the Mountain WMA	731 acres	41,400 ft
TOTAL	2832 acres	174,590 ft

Final Report Summary: A final report and associated products will be submitted between June 30 and August 15, 2017 as requested by the LCCMR.

Final Project Status: August 17, 2017

We fenced eight WMAs, primarily in Prairie Plan Core Areas, for a total of 2832 acres. Grazing plans have been written for these sites by Kelly Anderson, MN Department of Agriculture. These funds only cover the perimeter fencing in areas with permanent fencing is needed, such as near busy roads. Any temporary internal fencing will be installed and removed by the cooperator. On less traveled roads, the producer will put up and remove temporary perimeter fence. These sites were not included in this project.

The projects listed below were dropped effective 8/31/14:

~~Caribou WMA site:~~

8/31/14 -After lengthy discussions, it was decided to drop this site from LCCMR funding due to concerns about the lack of ecological justification for using grazing in the new expanded areas (West Unit in sections 1 and 12 of McKinley Township). It is a relatively pristine, wilderness-type area.

12/31/13 -Drafted a grazing plan in consultation with grazing specialists. Fred Harris, through MBS, has conducted some preliminary vegetation monitoring and we have established grazing exclosures in the area in anticipation of beginning to graze the sites upon establishment of the fences. Currently making final decisions about the fencing and water needs for the site so that we can begin the bidding process for that work.

~~Eldorado WMA:~~

8/31/14 - After completion of the grazing plan and fencing plan, it was decided that it was cost prohibitive to do permanent fencing on this WMA due to the presence of wetlands and streams that straddle the boundary making fencing difficult. What makes grazing impractical is the small amount of grass available vs. the extent of fencing required. If this area is grazed in the future, it will likely be with temporary fencing.

12/31/13 -Draft grazing plan has been written with Kelly Anderson and staff is working on the fence design. Eldorado WMA was the site of extensive monitoring through the Working Lands Initiative to compare the vegetative response to haying vs. spring burning. This would be an ideal location to monitor the response to grazing using the same monitoring protocols.

Wilts WMA :

8/31/14 - After completion of the grazing plan and fencing plan, it was decided that it was cost prohibitive to do permanent fencing on this WMA due to the presence of wetlands and streams that straddle the boundary making fencing difficult. What makes grazing impractical is the small amount of grass available vs. the extent of fencing required. If this area is grazed in the future, it will likely be with temporary fencing.

12/31/13 -Draft grazing plan has been written with Kelly Anderson and staff is working on fence design.

Anticipated contracting procedure:

There are several contracting strategies that will be used to complete the perimeter fencing and water needs on the WMA’s selected for conservation grazing as part of the LCCMR grant. Using the fence materials and construction standards that DNR Wildlife created as a reference guide, contract specialist plan to try several strategies for contracting to see what will be the best approach for the future contracts factoring in price, quality, time, efficiency, and availability of contractor’s. The possible strategies that DNR may employ in contracting out the perimeter fencing and watering infrastructure are as follows:

- Purchase the materials by bid process (quality control) and contract out the installations using a Commissioner’s bid process.
- Contract out the installation including supplying the materials using a Commissioner’s bid process.
- Use a master contract to purchase materials and then bid out installations. Note – Using the master contract in its current form is not cost effective (saves time but materials are significantly higher cost than we could get in a bid process)
- Use a master contract for materials and installation. We have not really explored this option much and if it is even a viable option for our program but we plan to once we get to the point of putting in fences.

ACTIVITY 2: Measure the ecological response of grazing on habitat condition and wildlife species. Measuring changes in plant and structural diversity, invasive species abundance, soil conditions, etc. will allow adaptive management practices to be implemented which will increase future effectiveness of grazing applications. Communicate monitoring results and adjust management practices. Evaluate livestock producers’ response to conservation grazing. We will contract with one Ecologist/Botanist for 2 years, through the standard DNR contractual process. Coordination and additional monitoring will be conducted by staff Habitat Assessment Biologist.

Summary Budget Information for Activity 2:

ENRTF Budget: \$ 54,798
Amount Spent: \$ 4,767
Balance: \$ 50,030

Activity Completion Date:

Outcome	Completion Date	Budget
<p>1. Existing habitat condition, as measured by the diversity and abundance of native plants and wildlife, is maintained or improved. The heterogeneity in the targeted prairie supports a broad base of grassland birds and wildlife as a result of the grazing.</p> <p>Local resource managers are equipped to measure if conservation objectives have been met.</p>	June 30, 2017	\$54,798

Activity Status as of: Dec. 31, 2013

In 2013, the DNR worked with partners (TNC, USFWS, USGS) to test and compare different methods for evaluating plant community responses to grazing. During the winter of 2013/14, we are analyzing the data and will determine which protocols best meet the grazing monitoring objectives. Also during the winter of 2014 we hope to purchase computers and software to allow us to develop GIS and remote sensing based methods for monitoring grazing.

Activity Status as of: Aug. 31, 2014

- DNR Prairie Monitoring and Evaluation Biologist, Greg Hoch, is finishing up a clipping project to allow managers to best determine when to remove cattle to meet cover management objectives for the fall hunting season and the following nesting season.
- Hoch is designing a project at a WMA in the Glenwood area to look at using grazing as a tool for overseeding low diversity sites with a high diversity seed mix.
- Within the next two months, Hoch will purchase the software and begin the remote sensing analysis of conservation grazing sites across the western part of the state.

Activity Status as of: Dec. 31, 2014

DNR is working on a large monitoring project in Mahnomon County (1,600 acres) that will yield interesting results in the next few years.

Activity Status as of: Aug. 31, 2015

Activity Status as of: Dec. 31, 2015

Monitoring was less efficient than hoped for this year due to staff changes within the DNR and there being no Prairie Habitat Monitoring Biologist for most of the growing season. However, there were accomplishments. DNR has been working with TNC and USFWS biologists to see if existing grassland monitoring efforts need to be 'tweaked' to better sample grazing activities. Greg Hoch worked with Fred Harris (MBS) to design a study to examine the effects of grazing on small seasonal and temporary wetlands at Laq Qui Parle. We are also helping to develop an intensive sampling regime for a grazed site in Norman County. Fencing and the hiring of a research contractor are being paid for with other funds. We are working on developing some guidelines to help managers determine if grazing is a good management tool for a particular site, comparing existing conditions to desired future conditions. We are working with the Glenwood DNR staff to develop a monitoring scheme for using livestock to increase the species diversity in low-diversity restored grasslands on WMAs.

Anecdotally, we can report that we were very pleasantly surprised to see the wildlife responses to grazing (and haying). We were seeing a different suite of wildlife species than we normally see in the taller vegetation typical of most WMAs, WPAs, and CRP fields. Shorebirds and several songbirds, notably meadowlarks, were very abundant in several of the grazed wildlife lands.

Activity Status as of: Dec 31, 2016

This spring we hired Jessica Peterson for the Habitat Biologist position. Jessica did her PhD on prairie butterflies and moths in Iowa. Unfortunately due to the length of the hiring process she didn't arrive here until early summer, too late to get much research accomplished in 2016. However, she will establish some transects to get some 'pre-' grazing data at some sites. We are very excited to have her as one of the primary reasons we want to graze is to increase both plant diversity and invertebrate diversity and abundance. Several of the plant species most commonly mentioned in the literature of some of the recently listed prairie butterflies are actually grazing increasers.

Project Status as of: March 17, 2017

There are no new updates since the Dec 31, 2016 update. See attached cover letter for additional information.

Final Report Summary: A final report and associated products will be submitted between June 30 and August 15, 2017 as requested by the LCCMR.

Final Project Status: Aug 17, 2017

Again, due to staff turnover we were not able to hire and supervise a botanist. The intent was to get the fencing up in the first year or two and then use the botanist to study the effects of the grazing. With the long delays in getting the fencing up, it was obviously not possible to do any post-grazing analysis. However, this summer the Prairie Habitat Biologist, Jessica Peterson, did establish some long-term monitoring transects at some of these sites. Monitoring will be done, but will be funded through the DNR.

We did expend some of the travel funds. These were used primarily to go to travel to visit sites to evaluate their potential for grazing and develop the protocols in partnership with other grassland researchers.

ACTIVITY 3: Collaborate with Future Farmers of America to develop a teaching tool for Conservation Grazing and educate the public about the objectives of conservation grazing. The curriculum will target high school agricultural education students with interest in natural resources. This curriculum will supplement education in natural resources and wildlife management techniques. There will likely be two components: one a brief introduction to conservation grazing that will fit in with existing curriculum or for informing the general public and a second advanced course with a field study component. There are many small WMAs that could benefit from grazing where it would be difficult to entice a commercial producer to stock cows, simply because stocking rates would be so low. However, these sites would be ideal for student projects. Thus the public will receive benefit through habitat improvement on small parcels and students will receive practical experience in conservation grazing.

Summary Budget Information for Activity 3:

ENRTF Budget: \$ 21,574
Amount Spent: \$ 0
Balance: \$ 21,571

Activity Completion Date:

Outcome	Completion Date	Budget
1. Develop conservation grazing curriculum that meets high school science standards for agricultural education students with interest in natural resources, including FFA students. Encourage students to do projects on WMAs. Share curriculum with others for their Prairie training programs. Contract curriculum writer may be a high school science teacher or other qualified writer. Final product will be posted on DNR Academic Standards Correlation Database and DNR education webpage at a minimum.	June 30, 2017	\$21,574

Activity Status as of: Dec. 31, 2013

On July 20, 2013 Carmelita Nelson gave four concurrent presentations to the MN Association of Agricultural Educators (approximately 100 people). This is the group of people who will be using the Conservation Grazing Curriculum funded by LCCMR. They gave recommendations on what they would like to see included in the curriculum, nine teachers volunteered to pilot test the curriculum, and five teachers are interested in contracting to be the curriculum writer.

During the winter of 2014 the curriculum requirements will be developed and the contract process begun so that a teacher/writer may begin development of the curriculum during the summer of 2014.

Activity Status as of: Aug. 31, 2014

We have met with DNR educational specialists about best process for contracting for curriculum writers (professional/technical contract or annual plan). We are working on clearly defining work expectations, number of activities to be developed or Apps, target grade levels, how this curriculum will tie-in with science, English, math and social studies educational standards. Ideally we would also like to have a service learning component to the curriculum. We are also determining if we will be hiring a second contractor to review/edit the curriculum and if the program should be piloted. We have also gathered the names of additional people interested in contracting to be the curriculum writer.

Activity Status as of: Dec. 31, 2014

This project was a high priority of staff this fall and early winter, however the same staff were diverted to working on the Minnesota Pheasant Summit. Consequently little progress was made. However, the Pheasant Summit was a tremendous success and hunter and public appreciation of the value of conservation grazing was enhanced.

Activity Status as of: Aug. 31, 2015

Activity Status as of: Dec. 31, 2015

Due to staffing changes, we have not been able to focus on this activity in 2015. However, we do have a list of educators who are interested in working with us on the curriculum development.

Activity Status as of: Dec 31, 2016

This has also been challenging. From several conversations over the past couple years, academics are so focused on 'teaching for the test' that extra modules to the curriculum are not as popular as just a few years ago. However, we will continue to talk with the FFA as well as Minnesota Cattlemen's to develop science-based curriculum for at least a couple different age groups.

Project Status as of: March 17, 2017

There are no new updates since the Dec 31, 2016 update. Please see attached cover letter.

Final Report Summary: A final report and associated products will be submitted between June 30 and August 15, 2017 as requested by the LCCMR.

Final Project Status: August 17, 2017

As described earlier, we simply couldn't generate much interest in curriculum development. We tried several avenues and just couldn't find interest. There is so much pressure to 'teach to the test' in the modern curriculum that we didn't find any interest in new curriculum modules. At the same time, the DNR staff who was largely heading up this effort took a new position in another Division and her position was not refilled.

V. DISSEMINATION: This is primarily an infrastructure project; however, information learned will be shared with DNR staff and our partners through our normal information dissemination channels such as DNR staff meetings, professional conferences, etc.

Description:

Status as of: Dec. 31, 2013

Promotion of the LCCMR funded conservation grazing project occurred frequently during the last 6 months. Conservation Grazing information was displayed and distributed at the following events: Aug. 6-8 Farm Fest; Aug. 22-Sept. 2 State Fair; Oct. 14 training meeting with WI DNR staff, Dec. 2 SWCD Conference, Dec. 5 MN Grazing Lands Conservation Association; and Dec. 13-14 MN State Cattlemen's Convention. We worked with the Volunteer magazine to develop a series articles on prairie/grassland and grazing. See Minnesota Conservation Volunteer July-August 2013 issue. Various radio interviews were conducted with Farm Talk Agri News Radio

and Radio Works Ag Broadcast. Other grazing promotion/educational pieces occurred in the Land Magazine, Outdoor News, Ducks Unlimited Magazine and others.

Status as of: Aug.31, 2014

Promotion of the LCCMR funded conservation grazing project continues to occur in many venues. Conservation grazing information was available at the DNR booth at the Organics Conference in January. Staff gave conservation grazing presentation at the U of M Cow-Calf Days tour in 12 locations throughout MN in February. In March, staff gave a conservation grazing progress report to the Cattlemen's Day on the Hill meeting. During the interagency Plant Identification training in June and July over 150 participants were shown the increased species diversity on grazing lands during four courses taught by DNR staff and prairie experts. There was a large display/promotion at this summer's Cattlemen's Grazing Tour in July and information was also available at Farm Fest in August. Staff has conducted seven media interviews including with: Outdoor News, KDIO Radio, West Central Tribune, Star Tribune, Tri-County Record and the Mankato Free Press. Doug Smith from the Star Tribune wrote a large feature story on conservation grazing on WMAs and WPAs and TNC lands.

Status as of: Dec. 31, 2014

The LCCMR funded conservation grazing projects were promoted at the National Grazing Tour in September. High ranking cattlemen and agency staff from around the nation were very impressed with the progress of Minnesota's WMA conservation grazing program. In October, staff met with WI DNR and a representative of the National Pasture Project to explain the formation and funding of the MN conservation grazing program. A DNR booth was staffed at the Dec. Cattlemen's Convention and a presentation on best management practices for insecticide and dewormer use on conservation grazing lands was given at the Dec. statewide GLCA Videoconference. Conservation grazing was also favorably discussed at the governor's Minnesota Pheasant Summit.

Status as of: Aug. 31, 2015

Status as of: Dec. 31, 2015

Again due to staffing shortages this year we were not as active in this activity as we have been. However, we did staff a booth at the Organic's Conference. Greg Hoch and JB Bright (FWS) gave a talk on conservation grazing at the state Pheasants Forever annual meeting. We again traveled to Wisconsin to share our experiences with their DNR staff. We were invited to a second workshop in SW Wisconsin but had to cancel our visit due to a scheduling conflict.

Status as of Dec 31, 2016

As described earlier, Greg Hoch published an article in the MN Conservation Volunteer which discussed the conservation practices of ranchers in the Redwood Falls area. Hoch will also publish a second article on grazing in the next year with Pheasants Forever magazine. Hoch has also developed two new monthly columns in Outdoor News. Grazing will be a frequent topic of both of those columns.

Project Status as of: March 17, 2017

There are no new updates since the Dec 31, 2016 update.

Final Report Summary: A final report and associated products will be submitted between June 30 and August 15, 2016 as requested by the LCCMR.

Final Status Report: August 18, 2017

Conservation partners recently finished the planned revision and update of the Minnesota Prairie Conservation Plan. Grazing and Working Lands agriculture continues to be an emphasis of the Plan. Greg Hoch gave a presentation on public lands grazing at the 2017 Minnesota Cattlemen's Association meeting. We will continue to emphasize our interest in conservation grazing as a management tool at sites where grazing can help meet

wildlife habitat objectives. Although we were not as successful as we would have liked to be, the DNR and wildlife will benefit from the efforts under this appropriation.

VI. PROJECT BUDGET SUMMARY:

A. ENRTF Budget:

Budget Category	\$ Amount	Explanation
Professional/Technical/Service Contracts:	\$526,425	Fencing contracts under competitive bid for purchase & installation of approx. 64 miles of fence @ 1.30/ft x5280ft/mi=\$440,011 (includes grass mowing and small brush clearing), Installation of approx 50 gates16-ft & hunter access gates @ \$285 for both=\$14,250; Installation of electric hookup or solar energizers & solar panels (\$800ea/20=\$16,000) Installation of 20 cattle enclosure fences for monitoring @ 5 WMAs \$430each x 4/site =\$8,600. One Ecologist/Botanist for 2 years = \$40,000 (potentially DNR employees); Contract for curriculum writer=\$20,000
Equipment/Tools/Supplies:	\$19,000	At least 160 Aluminum Grazing notification signs required by law @ \$6/ea=\$1,000; \$6,000 per year for three years for coordinator communications, supplies, computer services, new laptop computer, postage, etc. = \$18,000.
Travel Expenses in MN:	\$10,800	For habitat monitoring \$10,800
Direct and Necessary Services for the Appropriation*	\$43,775	DNR costs for the appropriation.
TOTAL ENRTF BUDGET:	\$600,000	

*Direct and Necessary expenses include both Department Support Services (Human Resources, IT, Financial Management, Communications, Procurement, and Facilities) and Division Support Services. Department Support Services are described in agency Service Level Agreements, and billed internally to divisions based on indices that have been developed for each area of service. Department leadership (Commissioner’s Office and Regional Directors) are not assessed. Division Support Services include costs associated with Division business offices and clerical support. Those elements of individual projects that put little or no demand on support services such as large single-source contracts, large land acquisitions, and funds that are passed-thru to other entities are not assessed Direct and Necessary costs for those activities.

Explanation of Use of Classified Staff: N/A

Explanation of Capital Expenditures Greater Than \$3,500: N/A

Number of Full-time Equivalent (FTE) funded with this ENRTF appropriation: N/A

Number of Full-time Equivalent (FTE) estimated to be funded through contracts with this ENRTF appropriation: N/A

B. Other Funds:

Source of Funds	\$ Amount Proposed	\$ Amount Spent	Use of Other Funds
Non-state Other Non-State \$ Being Applied to Project During Project Period: USDA General Funds and EQIP Funds	150,000		NRCS Grazing Specialists to write Grazing Plans at approximately \$30/acre for 5,000 acres=\$150,000. This includes writing, travel, time spent meeting with representatives of DNR, etc.
State: MDA General Funds & dedicated funds	\$12,600	\$9,800	<p>Kelly Anderson has spent about: 220 hours total this reporting period.</p> <ul style="list-style-type: none"> • Grazing plan writing- 121 hours • Education and Outreach- 62 hours • Research and Policy Development- 33 hours • Admin and paperwork- 4 hours <p>NRCS Hours Lance Smith – 2 hours</p> <p>8/31/14 - 130 hours spent on writing, reviewing and providing assistance for writing grazing plans since the beginning of the 2014.</p> <p>72 hours for attending training workshops and outreach including the organic conference grazing workshops, cow/calf days (38 hours), Beef industry Partners Conference, MN State Cattlemen's tour, Kruger Farms Fall Primer.</p> <p>48 hours of planning, researching, compiling information and attending meetings relating to the pesticide BMPs.</p> <p>30 hours of other meetings and administrative work.</p> <p>280 hrs. x \$35 = \$9,800</p> <p>MN Dept. of Agriculture Livestock Development Team - mapping, promotions and outreach to livestock producers to find cooperators at 20 locations x 10 hrs ea. x \$35/hr = \$7,000. Field demonstration days, conservation walks, and workshops to train partners on livestock and conservation grazing four programs in 2 yrs x 40 hrs x \$35 = \$5,600.</p>
TOTAL OTHER FUNDS:	\$162,600	\$9,800	

VII. PROJECT STRATEGY:

A. Project Partners: Funds for this project will go to the DNR, primarily for contracts. Project assistance will be provided by: the Minnesota Department of Agriculture (MDA), Minnesota Grazing Lands Conservation Association, Minnesota State Cattlemen’s Association, Board of Water and Soil Resources (BWSR), Natural Resource Conservation Service (NRCS), U.S. Fish and Wildlife Service (USFWS), Soil and Water Conservation Service (SWCD), The Nature Conservancy, and the Land Stewardship Project in helping locate prospective grazing partners. Pheasants Forever, Ducks Unlimited, Minnesota Prairie Chicken Society, and other conservation groups have offered to help educate our interest groups about this new management practice and the resource benefits.

B. Project Impact and Long-term Strategy: DNR FAW was recently funded from a USFWS Webless Migratory Bird grant to hire a graduate student to look at the effects of mowing, spraying, and grazing on cattails and marshbird (rails, bitterns, and waterfowl). FAW Biologists were also recently funded on another Federal grant through the USFWS Landscape Conservation Cooperatives to look at larger prairie monitoring issues in the state. While not directly addressing grazing, grazing will be a component of this project.

Conservation grazing will continue on these sites using adaptive management protocols. Information learned from this process will be applied to other WMAs as the DNR grazing program expands. Ultimate results will be increased plant and structural diversity leading to greater insect abundance and increased wildlife populations on WMAs.

C. Spending History:

Funding Source	M.L. 2007 or FY08	M.L. 2008 or FY09	M.L. 2009 or FY10	M.L. 2010 or FY11	M.L. 2011 or FY12-13

VIII. ACQUISITION/RESTORATION LIST: N/A

IX. MAP(S): See Attachment

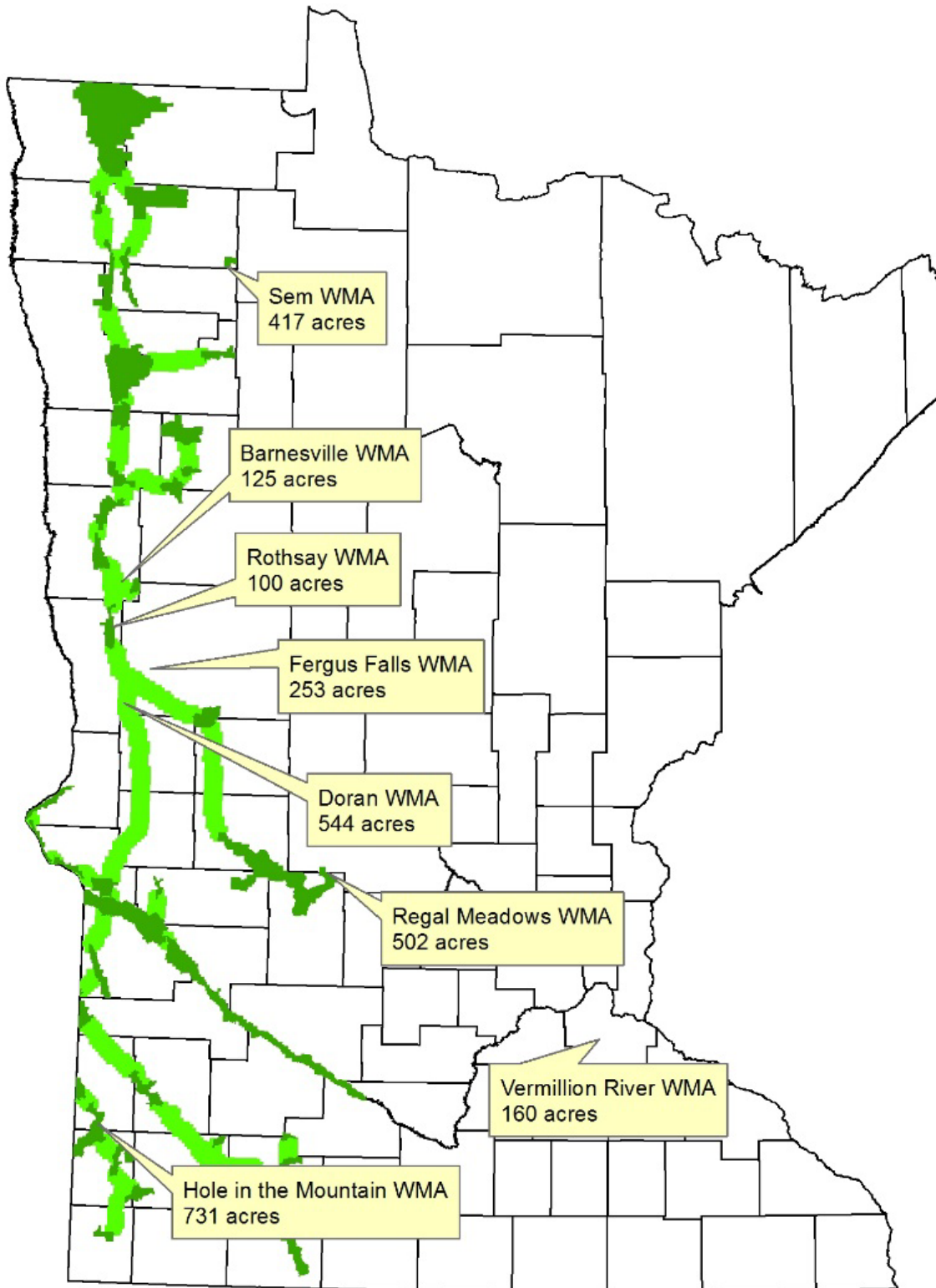
X. RESEARCH ADDENDUM: N/A

XI. REPORTING REQUIREMENTS:

Periodic work plan status update reports will be submitted not later than Dec. 31, 2013, Aug. 31, 2014, Dec. 31, 2014, Aug. 31, 2015 and Dec 31, 2015. A final report and associated products will be submitted between June 30 and August 15, 2017 as requested by the LCCMR.

Attachment 1.

Locations of Fencing Projects overlaid on Minnesota Prairie Conservation Plan



Attachment 2.

Field Tools for Estimating Regrowth After Grazing and Determining When to Remove Cattle from a Management Unit to Achieve Desired End of Season Habitat Structure

Introduction

Conservation grazing has two effects on the plant community. First, in most cases it will increase forb diversity. However, it may take several years and repeated grazing treatments to see this response. The second effect is more immediate and that is the alteration of the structure of the vegetation. This can include vegetation height as well as patchiness of the structure over the area.

Several managers have asked for a tool to help better decide when cattle should be removed from conservation grazing sites to meet habitat structural goals. Most of these habitat objectives will include having the desired structure for the fall and winter season or for the following spring nesting season.

This graph can be used one of two ways. First, it may help plan start and stop dates for grazing depending on the objectives for a site. Additionally, the graph could be used in the field when looking at current height of grass for a particular date and determining if cattle should be removed now or left on the site for additional days.

Assumptions

No research project is perfect and several assumptions were made. First, this is a relatively new restoration with low forb diversity. I'm not sure this was local ecotype seed, or at least the soil had a lot of residual fertilizer in it, as this was an incredibly thick and tall stand of grass by the end of the summer. Second, the plots were only clipped once. With grazing, each patch is often repeatedly grazed. However, if we're assuming that with conservation grazing we aren't grazing every year, there should be plenty of energy stored up in the plant the plants under conservation grazing should regrow vigorously even if clipped/grazed multiple times during the summer. This site was burned, which we know stimulates grass growth. Many times we aren't burning before we're grazing and grass would not reach the heights recorded at this site. For this reason, the data are presented as percentage of end of season height, not absolute height. Last, this was a relatively wet summer. I hoped to start earlier but there was an inch of water on the site the first couple times I visited in late May and early June.

Methods

The study was conducted on Lincoln Waterfowl Production area in Blue Earth County MN. The area was a restoration/reconstruction seeded primarily to big bluestem and was burned in the spring of 2014. Starting on 14 June and continuing to 22 August, I clipped three plots each week, approximately one meter in size to a height of about 1 cm or a half inch. From 27 June to 29 August, I recorded the height of the grass each week.

Results

At the end of the growing season, the height of the big bluestem seedheads was approximately seven feet. As most sites do not have grass this tall, the data are presented as a percentage of maximum end of season height. Obviously, the later the grasses are grazed in the season, the less time there is for regrowth. What is very clear on the accompanying graph (Figure 1) is when the warm-season grasses bolt in mid-summer. If the cattle are removed before early July, when warm-season grasses do most of their growth, there will be minimal impacts to the end of season heights. If cattle are left on after early July, they will have a much stronger impact on end of season grass height.

This growth pattern is seen in the ditches every summer. The ditches are mown in late June/early July, usually after the cool-season grasses are flowering or going to seed. The cool-season grasses show little regrowth. However, the warm-season grasses, such as big bluestem, which were also mowed grow significantly after they are mowed.

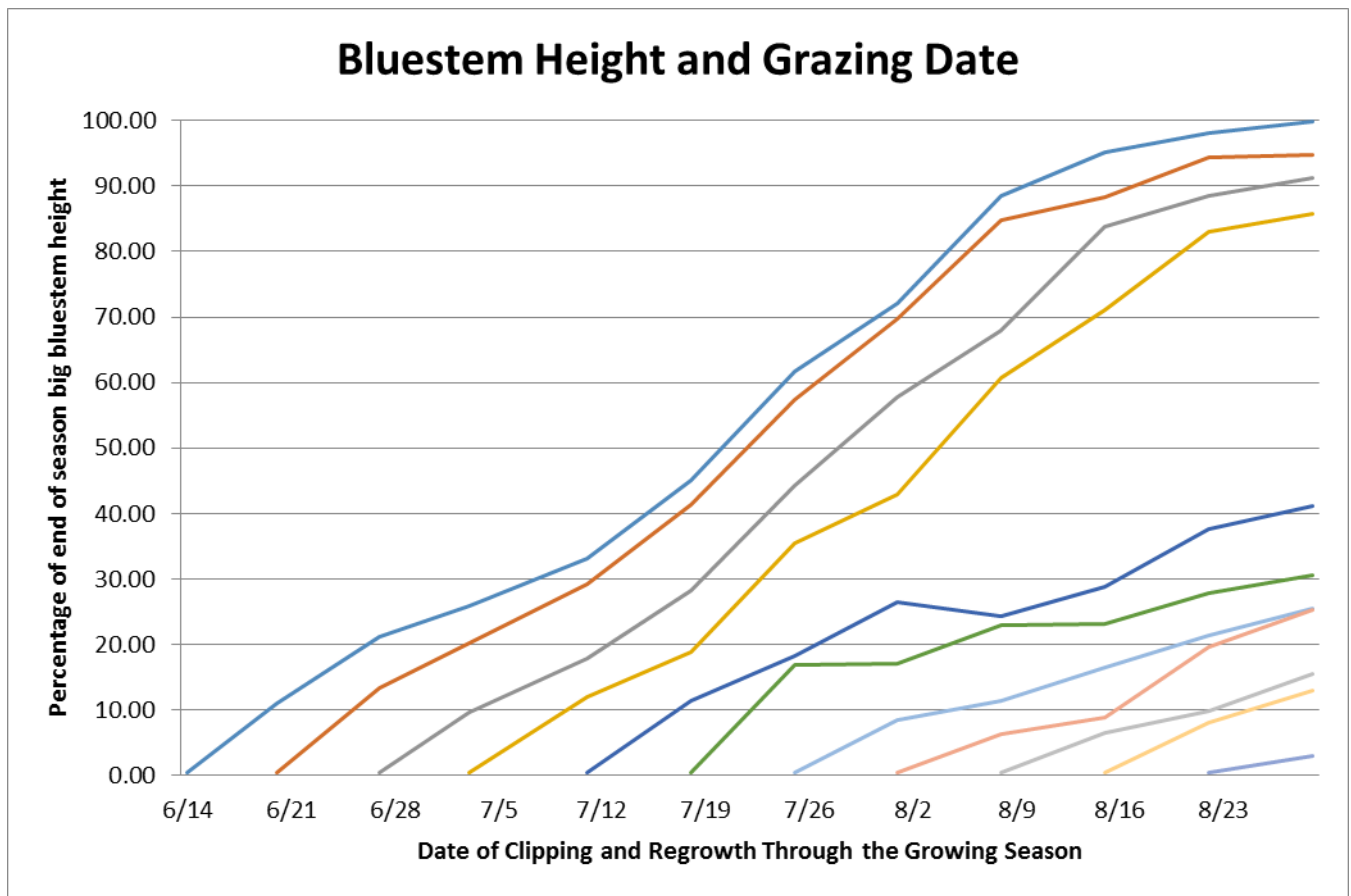


How to use these data

No site is the same and site-specific conditions need to be considered, especially relative to maximum grass height at the site. Wet vs dry, northern vs southern sites will have different heights of grass. However, managers can look at the height of the shortest grasses on the site, compare those to the dates from the bottom of the figure to make a rough estimate of what the end of season height of these areas. For instance, if the cattle are removed before early July, end of season growth will be 80-95% of ungrazed grass. If the cattle are removed the first week of August (8/2 on graph), the grass will be roughly 25% the height of ungrazed grass.

Additionally, managers should be roughly familiar with the grass height at each site. For grass not grazed heavily, managers can guesstimate end of season height. For instance, if the grass is twenty percent of expected maximum height on mid-July (purple line on graph), we can estimate that the grass will be at eighty-five percent of maximum height by the end of the growing season.

Figure 1. From this graph, managers can make rough estimates of the end of season structure of their site based on the height of the grass or grazing pressure at any point in the growing season. Obviously, local decisions are important. If we are entering into a dry spell, regrowth may not be as vigorous.



Attachment A: Budget Detail for M.L. 2013 Environment and Natural Resources Trust Fund Projects											
Project Title: CONSERVATION GRAZING ON WMAs IN THE PRAIRIE REGION											
Legal Citation:											
Project Manager: Greg Hoch											
M.L. 2013 ENRTF Appropriation: \$ 600,000											
Project Length and Completion Date: 3 years - June 30, 2017											
Date of Update: <u>22 August 2017</u>											
ENVIRONMENT AND NATURAL RESOURCES TRUST FUND BUDGET	Activity 1 Budget 12/31/2015	Amount Spent	Balance	Activity 2 Budget 12/31/2015	Amount Spent	Balance	Activity 3 Budget 12/31/2015	Amount Spent	Balance	TOTAL BUDGET	TOTAL BALANCE
BUDGET ITEM											
Professional/Technical/Service Contracts Fencing contracts for purchase & installation of 64 miles of fence @ 1.30/ft x5280ft/mi=\$440,011 (includes grass mowing and small brush clearing with an ASV with mowing head and grinding head), Installation of approx 50 gates16-ft & hunter access gates @ \$285 for both=\$14,250; Installation of electric hookup or solar energizers & solar panels (\$800ea/20=\$16,000) Installation of cattle exclosure fences for monitoring @ 5 WMAs \$430each x 4/site=\$8,600.	466,425	432,264	34,161							466,425	34,161
<u>One Ecologist/Botanist</u> for 2 years - contract per standard DNR contractual process. Coordination and additional monitoring will be conducted by staff Habitat Assessment Biologist.				40,000	0	40,000				40,000	40,000
<u>Curriculum writer</u> - contract per standard DNR contractual process.							20,000	0	20,000	20,000	20,000
Direct and Necessary Services for the Appropriation	38,203	17,284	20,919	3,998	182	3,816	1,574	0	1,574	43,775	26,309
Equipment/Tools/Supplies At least 160 Aluminum Grazing notification signs required by law @ \$6/ea=\$1,000; \$6,000/yr for 3 yrs for coordinator communications, supplies, computer services, postage, etc=\$18,000.	19,000	3,548	15,452							19,000	15,452
Travel expenses in Minnesota For habitat monitoring \$10,800; – fleet and other travel expenses				10,800	4,585	6,215				10,800	6,215
COLUMN TOTAL	\$523,628.00	\$453,096.34	\$70,531.66	\$54,798.00	\$4,767.08	\$50,030.92	\$21,574.00	\$0.00	\$21,574.00	\$600,000.00	\$142,136.58