

**M.L. 2013, Chapter 52, Sec., Subd. 06g and M.L. 2014, Chapter 226, Section 2, Subdivision 19 Project Abstract**

**For the Period Ending June 30, 2017**

**PROJECT TITLE:** Controlling Terrestrial Invasive Plants with Grazing Animals

**PROJECT MANAGER:** John Beckwith, Executive Director

**AFFILIATION:** Hiawatha Valley Resource Conservation & Development Council

**MAILING ADDRESS:** 63005 172<sup>nd</sup> Lane

**CITY/STATE/ZIP:** Janesville, MN 56048

**PHONE:** (612) 599-5864

**E-MAIL:** john.e.beckwith@gmail.com

**WEBSITE:** Not applicable

**FUNDING SOURCE:** Environment and Natural Resources Trust Fund

**LEGAL CITATION:** M.L. 2013, Chapter 52, Sec., Subd. 06g and M.L. 2014, Chapter 226, Section 2, Subdivision 19

**APPROPRIATION AMOUNT: \$52,000**

**AMOUNT SPENT: \$ 48,104.60**

**AMOUNT REMAINING: \$ 3,895.40**

**Overall Project Outcomes and Results**

The Hiawatha Valley Resource Conservation and Development Council, Inc., (HVRCD) began implementation of a program to control terrestrial invasive species through grazing with a pilot project in 2011. With the help of the USDA-NRCS a baseline inventory of selected sites was initiated along with documenting the effects of grazing on terrestrial invasive species.

In 2013 HVRCD received funding through the Environmental and Natural Resources Trust Fund (ENRTF). The project goals were: (1) develop a cost effective and environmentally friendly alternative to chemical and mechanical control methods for these species, (2) demonstrate that multi-species grazing techniques can be used effectively to control invasive plants, (3) distribute results during field day demonstrations to connect livestock producers with landowners and (4) develop a Best Management Practice for invasive species control using grazing management as a component.

Three sites were selected as part of this project; Gamehaven Boy Scout Camp, approximately 10 miles southeast of the City of Rochester; River Bend Nature Center in the City of Faribault; and Eden Acres, roughly 5.4 miles southeast of the City of Faribault.

Results show little change in seasonal buckthorn sapling density, an increase in buckthorn seedlings, and variable results for adult buckthorn mortality. However, results show a change in the age stand of buckthorn within treatment areas as fewer live adult and large saplings were documented within the treatment sites. This change makes further treatments by various means more attainable.

Garlic mustard density was dramatically reduced in two growing seasons at the River Bend site, showing a 94% decrease in density by 2016.

Additional documents included with this report: Prescribed Grazing (Goat) Project Final Report Covering Years 2014, 2015, and 2016; Final Project Report Gamehaven Boy Scout Camp; Minnesota Practice 528 Biological Brush Management Implementation Guide; Minnesota Practice Implementation Guide Biological Herbaceous Weed Control 528.

### **Project Results Use and Dissemination**

- 1) We were very fortunate to have one of our sites within the River Bend Nature Center near Faribault, MN. Small grazing animals created a great deal of interest amongst their visitors and staff. Handouts were available explaining the project, local newspapers did feature stories, and River Bend shared photos and explanations on their website. Signs were posted at the River Bend Nature Center grazing site appropriately crediting the project and to provide basic information of why there are goats there. These signs also had qr code allowing cell phone users more detailed information on the project. This kept the project in the news during 2015 and 2016 on a regular basis.
- 2) Tours were conducted involving garden clubs, Soil and Water Conservation District employees, USDA-NRCS, other professionals, public land managers, farmers and potential grazers.
- 3) The project has been featured on several radio and television stations in the Twin Cities market over the projects timeframe.
- 4) Project information was shared through brochures at annual conferences of the Association of MN Counties and also the MN Association of Soil and Water Conservation Districts through the MN Association of RC&D Councils exhibit booth.



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

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**Date of Status Update Report:** June 30, 2017

**Date of Next Status Update Report:** NA

**Date of Work Plan Approval:** June 11, 2013

**Project Completion Date:** June 30, 2017

**Is this an amendment request?** No

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**PROJECT TITLE:** Controlling Terrestrial Invasive Plants with Grazing Animals

**Project Manager:** John Beckwith, Executive Director

**Affiliation:** Hiawatha Valley Resource Conservation & Development Council

**Mailing Address:** 63005 172<sup>nd</sup> Lane

**City/State/Zip Code:** Janesville, MN 56048

**Telephone Number:** (612) 599-5864

**Email Address:** john.e.beckwith@gmail.com

**Web Address:** Not applicable

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**Location:** Olmsted County plus one other site within the eleven county area including: Rice, Steele, Dodge, Freeborn, Mower, Fillmore, Houston, Winona, Wabasha, Goodhue, Olmsted.

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**Total ENRTF Project Budget:**

**ENRTF Appropriation:** \$52,000.00

**Amount Spent:** \$48,104.60

**Balance:** \$3,895.40

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**Legal Citation:** M.L. 2013, Chapter 52, Sec., Subd. 06g and M.L. 2014, Chapter 226, Section 2, Subdivision 19

**Appropriation Language:**

\$52,000 the first year is from the trust fund to the commissioner of natural resources for an agreement with Hiawatha Valley Resource Conservation and Development, Inc. to develop cost effective best management practices to control invasive terrestrial species through planned grazing. This appropriation is available until June 30, 2016, by which time the project must be completed and final products delivered.

Carryforward: (b) The availability of the appropriations for the following project is extended to June 30, 2017: Laws 2013, chapter 52, section 2, subdivision 6, paragraph (g), Controlling Terrestrial Invasive Plants with Grazing Animals.

## **I. PROJECT TITLE:** Controlling Terrestrial Invasive Plants with Grazing Animals

**II. PROJECT STATEMENT:** Terrestrial invasive plants including buckthorn, wild parsnip, garlic mustard and others are becoming dominate species at an alarming rate in many ecological sites in SE Minnesota. Present chemical and mechanical control methods are costly, effective only in the short-term or have other negative environmental impacts. Prescribed grazing for invasive plant management has been used in many parts of the western US to manipulate patterns of defoliation and disturbance to place target plant species at a competitive disadvantage. This is often done by grazing at a time and frequency when target plants are most vulnerable to prevent flower and seed production. Grazing management that employs multispecies (goats, sheep and cattle) grazing techniques takes advantage of each animal's inherent dietary preferences among different livestock classes. Benefits include reducing the competitive advantage of one plant over another by creating equal pressure on grasses and forbs in a community.

The goal of this project is to: 1) develop a cost effective and environmentally friendly alternative to chemical and mechanical control methods for these species, 2) demonstrate that multispecies grazing techniques can be used effectively to control invasive plants, 3) distribute results during field day demonstrations to connect livestock producers with landowners in the SE Minnesota Driftless Area and 4) develop a Best Management Practice for invasive species control using sustainable grazing management as a component of an overall management plan.

Sites with the target species will be selected and grazed at different durations and intensities using multispecies grazing techniques. The grazing duration, intensity, frequency and timing will be evaluated to determine the most successful method for invasive plant control. Monitoring will be conducted during the spring, summer and fall for three years to document the effect of prescribed grazing management. Control plots will also be established and managed with mechanical or chemical treatments for comparison.

This project will allow Hiawatha Valley RC&D to continue grazing efforts already initiated during the 2011 and 2012 growing seasons to expand federal funds previously earmarked for the Driftless Area Initiative. We envision this project will be the mechanism to transfer small localized prescribed grazing knowledge and sustainable techniques to a broader audience across the SE Minnesota Driftless Area.

## **III. PROJECT STATUS UPDATES:**

### **Project Status as of January 2014:**

Since the awarding of this grant, Hiawatha Valley Resource Conservation and Development Council has done much of the work to prepare for the 2014 grazing season. Initially, staff worked with NRCS Grazing Specialists to determine sites for the project. While several sites were visited, two sites have been determined to be the best fit with the proposed project. The City of Rochester and Steele County Landfill have verbally committed to act as hosts for the project, and formal agreements (as needed) are currently being finalized. The presence of the NRCS Grazing Specialist helped make sure that the grazing stock was appropriate for the types of animals we anticipate having on the sites.

Once the sites were determined, staff turned to locating herders with appropriate grazing stock. By the end of this reporting period, a Request For Proposals had been circulated to partners for feedback and then finalized. In addition, a mailing list of potential herders was received from the Midwest Grazers Association. The RFP will be sent to those on this list as they either have operating herds or have an interest in establishing an operating herd.

Hiawatha Valley RC&D also requested an extension to the original grant end date. Due to the nature of the project, having three full grazing seasons is more illustrative of the effect grazing would have on controlling invasive plant species instead of one full seasons and two half seasons, as the original terms of the grant

dictated. The request has been tentatively approved (pending legislation) and grazing will begin in spring of 2014 and end in fall of 2016.

#### Amendment Request

Leadership of this project has also undergone a change with staffing transitions at Hiawatha Valley RC&D. John Beckwith will now serve as project leader for the organization (contact information updated above).

**Amendment Approved: 05/09/14**

#### **Project Status as of July 2014:**

Seven potential sites were identified in our RFP and search process. After reviewing the sites for presence of invasive species, interest of landowner after increased awareness of the overall process and responsibilities, and whether grazing animals were available to the site, we narrowed the sites for the project to three sites. Two of these sites will have grazing animals contracted in the upcoming years, and the third site, Gamehaven Scout Camp, will be monitored in relationship to past grazing on this parcel. We will also evaluate the potential of mechanical or chemical treatments on all three sites in an effort to gain the most information from the grazing project.

In the process of evaluating grazers and available sites we have contracted with two individuals. In one case the grazer is the landowner as well. The landowner is building a goat herd for the purpose of invasive species control. We are working with this individual on a related effort to document a business plan related to grazing animals that might be used by others with interest in providing grazing services in their communities. The lack of grazers for this purpose has been a hurdle to overcome in our project. On the second site, the Steele County Landfill, we were able to locate a livestock owner with cattle to put on this more open site with a moderate but increasing infestation of wild parsnip. This grazer is interested in the overall project success, and is experienced in pasturing land away from his home site.

In addition to contracting landowners and grazers an RFP was sent to 25 agencies and partners in the area seeking responses and requesting that they also share the RFP with anyone they know of with the skill set required. We also sent the RFP to four individuals we were aware of with the expertise needed for the work. We heard back from three individuals. One did not make a proposal. After review of the proposals received a selection was made and a draft agreement with that firm is being reviewed with hopes we will enter an agreement with them within the next week.

We have excellent cooperation and contributions from the outside agencies projected to be involved. In addition we have had input from additional naturalist and plant specialists. These activities have us on track to meet the scheduled activities of the work plan.

#### **Project Status as of January 2015:**

The project is proceeding on schedule. Two sites have been contracted along with the vegetative specialist for monitoring.

Soon after the Steele County site was contracted it became apparent that that site was not going to work out due to flooding. The grazer requested termination of the contract and returned the payment check to be voided. The site was unsafe due to high water. Although he had started preparation for fencing and purchased the fencing materials he requested no payment for his efforts.

We soon contracted a site at River Bend Nature Center near Faribault. White Sweetclover and buckthorn were the primary invasive species. Garlic Mustard was also found on site, but due to existence of dwarf trout lily in the vicinity grazing will probably not be a control method of choice. This site has provided a very public

opportunity to graze the species of concern. They have used their website to share the project. We will have signs in place next year to better explain the project.

The Aqua Eden site continues to be grazed as well. This has been a very intensively managed site, made possible because the grazer lives at this site. We have received reports for the grazing management of this site and have monitored the change.

WSB & Associates was contracted to complete the vegetative monitoring.

**Project Status as of July 2015:**

The project sites and contracts are proceeding as scheduled and described above.

The River Bend Nature Center site continues to provide great public exposure, and challenging grazing opportunities. New invasive species have been identified, but we continue to focus on buckthorn, and sweetclover. Lack of sweetclover this year has allowed us to add seasonal grazing of wild parsnip and garlic mustard.

Focus of the Aqua Eden site remains on buckthorn. We did revise the management plan to allow for earlier grazing this year. Winter fencing was a challenge, but the grazer did accomplish this effectively. The goats were monitored closely for potential damage to native vegetation but this did not present a problem.

Staff changes at the monitoring consultant resulted in some additional time to confirm the project expectations for the monitoring phase. The process is now confirmed and we are continuing as planned.

There has been a great deal of interest resulting in local tours/demonstrations, TV and radio spots, and local paper coverage. The grazer has also actively presented the project in you tube videos he has produced.

**Project Status as of January 2016:**

The project is entering its final grazing year. The Aqua Eden site will not be grazed this year as a part of the contract unless a minor budget revision is approved. This amendment will be requested in near future. With that minor request, I feel we can renegotiate the contract to include grazing on the Aqua Eden site, with the grazer maintaining records, and involve him to a greater level in the outreach and BMP development process. The River Bend Nature Center site has one more season of grazing on the contract.

We met earlier this week with the firm conducting the monitoring and reporting. We are on track with the projects as planned. The vegetative monitoring plan and results have become an area of interest in others involved in grazing of invasive species. This project seems to be the pioneer of these efforts in MN.

Another spin-off of this project has been the establishment of a "service grazing network" under the umbrella of MN Sustainable Farming Association. We are actively engaged with this group of professionals and farmers as we see this group being very helpful in considerations regarding BMP development. This group has grazers, private consultant ecologists, public land managers, UM extension, NRCS, and other nonprofit organizations. It was a result of a meeting at our River Bend Nature Center site.

We are having a great number of discussions regarding the value of grazing in controlling invasive plants, and the best ways to encourage more grazers to get into this service industry. We have applied for grants to help us use what has been learned in this project to develop a business model template, to identify grazing options that maximize profits of such a business, and also to reach out to youth and minority communities to determine interest in service grazing as a part of a beginning farmers operation.

### **Amendment Request (02/15/2016)**

This is a request for a minor budget adjustment needed to most effectively use the available funds within the remaining timeline. Specific adjustments are requested as follows:

- Activity One, *Equipment/Tools/Supplies “for chemical and manual removal for control plots”* reduced from \$1,000 to \$0. The funding is not needed because chemical and mechanical controls were available from partners, without ENRTF funds.
- Activity Two, Professional/Technical/Service contracts for *“vegetative monitoring, grazing plan development, manage and monitor control plots, BMP Development”* reduced by \$73 due to actual contracted value.
- Activity Two, Professional/Technical/Service contracts for *“Landowner/Herdsman (TBD): Service Contract to manage herd, plan decision maker, implement and manage BMP, monitor economic, herd and vegetative status”* reduced by \$150 due to actual contracted value.
- Activity Three, *“Professional/technical/Service Contracts, “John Beckwith, Project Manager: project facilitation, coordination, monitoring, outreach and reporting”* increased by \$1,223 in order to better address the BMP development and economic considerations of service grazing animal enterprises.

Amendment Approved: 2/16/16

### **Project Status as of July 2016:**

The project continues on schedule.

The grazing contract on the Aqua Eden site has expired. Monitoring will continue through this growing season on that site.

A grazing contract remains in effect on the River Bend Nature Center site through this grazing season. This remains a great site for visibility and to generate interest in the project.

We have received a grant from MDA SARE in order to evaluate the potential for winter grazing of invasive plants. This will help us evaluate the profitability and environmental impact of grazing animals through a longer contract season.

We are beginning to look at how the final report will be used to pull together all that has been learned in this project.

### **Project Status as of January 2017:**

The project continues on schedule for completion by June 30<sup>th</sup>.

Grazing and monitoring are completed for this project in entirety. Draft annual reports are prepared and the final report is being worked upon.

### **Project Status as of July 2017:**

The Hiawatha Valley Resource Conservation and Development Council, Inc., (HVRCD) began implementation of a program to control terrestrial invasive species through grazing with a pilot project in 2011. With the help of the USDA-NRCS a baseline inventory of selected sites was initiated along with documenting the effects of grazing on terrestrial invasive species.

In 2013 HVRCD received funding through the Environmental and Natural Resources Trust Fund (ENRTF). The project goals are: (1) develop a cost effective and environmentally friendly alternative to chemical and mechanical control methods for these species, (2) demonstrate that multi-species grazing techniques can be used effectively to control invasive plants, (3) distribute results during field day demonstrations to connect livestock producers with landowners and (4) develop a Best Management Practice for invasive species control using grazing management as a component.

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### **Project Results Use and Dissemination**

- 1) We were very fortunate to have one of our sites within the River Bend Nature Center near Faribault, MN. Small grazing animals created a great deal of interest amongst their visitors and staff. Handouts were available explaining the project, local newspapers did feature stories, and River Bend shared photos and explanations on their website. Signs were posted at the River Bend Nature Center grazing site appropriately crediting the project and to provide basic information of why there are goats there. These signs also had QR code allowing cell phone users more detailed information on the project. This kept the project in the news during 2015 and 2016 on a regular basis.
- 2) Also at the River Bend site, a volunteer group was organized to combat invasive species. This group conducted buckthorn removal activities through mechanical and chemical means. They also monitored and sought to eliminate other terrestrial invasive plants in the Center. Working along with the grazing efforts provided the members firsthand knowledge of grazing benefits.
- 3) Tours were conducted involving garden clubs, Soil and Water Conservation District employees, USDA-NRCS, other professionals, public land managers, farmers and potential grazers
- 4) The project results were shared at a grazing workshop in Rushford, MN. This workshop was hosted by Hiawatha Valley RC&D and MN DNR. The workshop provided information from a number of sources on the opportunities available for starting a grazing business to control undesirable plants.
- 5) The project has been featured on several radio and television stations in the Twin Cities market over the project's timeframe.
- 6) Project information was shared through brochures at annual conferences of the Association of MN Counties and also the MN Association of Soil and Water Conservation Districts through the MN Association of RC&D Councils exhibit booth.
- 7) A meeting and tour was held with MN Sustainable Farming Association, UM Extension, Three Rivers Park District, Private Consultants, RBNC staff and Hiawatha Valley RC&D leadership to discuss the project, results, consider recommendations, and need for BMP's. In addition, we discussed the opportunities grazing of invasive species might have for beginning farmers.
- 8) The project was presented at the 2016 MN organic agriculture conference and also the 2016 Midwest invasive species conference in LaCrosse, WI.
- 9) The Grazer and Hiawatha Valley RC&D are actively engaged in, and important to the initiation of, a network of ecological grazing partners organized under the MN Sustainable Farming Association.
- 10) Through an AgStar grant we are also utilizing the knowledge gained to develop a business plan model for ag entrepreneurs interested in starting an ecological services grazing enterprise.
- 11) John Beckwith met with the Minnesota Invasive Species Advisory Council to share the project to date and issues being encountered that could benefit from their attention.



- 12) The state grazing specialist of USDA-Natural Resources Conservation Service was very engaged in development and management of this project. During that timeframe he also utilized the information from this project, along with other resources, to develop job sheets for use of grazing in controlling invasive plants in both brush and herbaceous settings. Those job sheets are included with this report and also available on-line through USDA-NRCS.
- 13) The reports were published in hard copy in a limited supply and will be used as handouts for folks interested in the project results.
- 14) The reports will also be put on line on the Hiawatha Valley web page. They will also be made available to link from the MN Sustainable Farming Website – Ecological Grazing Network page.

**IV. PROJECT ACTIVITIES AND OUTCOMES:**

**ACTIVITY 1: Inventory, Monitoring, Evaluation and Documentation**

In this project, at least two sites will be selected with terrestrial invasive species present and herdsman available to graze animals on these sites in an attempt to disrupt the growth of these plants in favor of more desirable species. We will carry out a detailed monitoring plan to include information on vegetative change, general animal health and weight gains, and the related economic implications.

Site conditions will be documented through photographs and vegetation transects at initiation and as the project progresses (spring, summer and fall).

Grazing management techniques will be monitored and evaluated to determine grazing duration, intensity, frequency and timing modifications required to determine the most effective management for target and non-target species.

Animals will be monitored to determine optimal animal and herd size. Producers will be asked to monitor weight of animals at initiation of grazing and at conclusion, amount of supplemental feed provided to animals, any other supplements received, types of veterinary treatments received, and amount of time for caring for herd and moving fences.

Control plots will be established using alternative methods of species control including chemical controls, burning, and physical removal. These plots will be monitored for method comparisons for outreach at field demonstration days.

**Summary Budget Information for Activity 1:**

**ENRTF Budget: \$ 17,000.00**  
**Amount Spent: \$ 16,366.48**  
**Balance: \$ 633.52**

**Activity Completion Date:**

<b>Outcome</b>	<b>Completion Date</b>	<b>Budget</b>
<b>1.</b> Baseline data collection, vegetation transects, and photograph documentation	September 2015	\$3,000
<b>2.</b> Evaluation of grazing modifications (if necessary) for targeted and non-targeted species.	May 2015	\$7,000
<b>3.</b> Inventory, evaluate & document control sites receiving mechanical and chemical treatment	September 2015	\$7,000

**Activity Status as of January 2014:**

Two sites have been selected with help from the NRCS Grazing Specialist as noted below. While an initial evaluation of the sites was offered by the Specialist, no official transects or other measures have yet been taken on the sites.

**Activity Status as of July 2014:**

Site one, Jake Langeslag, owner of Aqua Eden LLC and livestock owner, has had initial data collection made and documented by USDA-NRCS persons. In addition, a second review of plants and initial response to grazing was conducted on-site by NRCS grazing specialist, NRCS forester, a private consultant landscape restoration specialist, and the landowner. Through these site visits and input a draft grazing management plan with recommendations for monitoring have been prepared.

Site two, Steele Co. Landfill with Nick Anderson grazer, has had an initial review by the NRCS grazing specialist. We are awaiting a more detailed assessment in the near future. The extremely wet weather and access to the site has hampered fence building but this should be underway during this week.

Both grazers have been given guidance on the information they are required to provide regarding livestock management and related grazing activities.

In addition, we are in final development stages of an agreement with a plant specialist to conduct the monitoring for the duration of the project. This firm will assume leadership in the monitoring activities in the near future, working closely with the other specialists providing services in-kind.

**Activity Status as of January 2015:**

Work contracted with WSB & Associates has been conducted primarily by Nicole Lehman. Site assessments and monitoring plans are complete. Monitoring was also completed for 2014. The annual report is being prepared at this time. This report will be available for the July status report. This activity is on schedule.

**Project Status as of July 2015:**

Staff changes at WSB & Associates delayed some of the reporting requirements. The new staff has been in the field and completed the monitoring. Reports will be secured prior to further payment. We have met with the staff and have confirmed expectations for reporting and monitoring.

**Project Status as of January 2016:**

The final report for the Gamehaven site near Rochester has been prepared. This site was grazed prior to this ENTRF funded project and was a part of this project for monitoring of changes. The site was not grazed as intensively as our sites in the current project, but has offered some insight as to the impact of grazing on buckthorn.

A draft annual report has been prepared and is out for comment by myself and the grazer for the current grazing sites. The methodology is well documented and the data and information coming from the project appears to be useful in assessing the impact on the plant community. We are looking both at the impact on invasive plants, and also attempting to document impacts on desirable native plants. Perhaps the project would have been better served by extending the timeframe of monitoring. Each year and each species attacked is a learning experience. There is temptation to expand the species being targeted and the acres served but we have maintained a focus to gain the most from what we started with.

We will have some information on plants including buckthorn, white sweetclover, garlic mustard and wild parsnip specifically. The grazer and plant specialists are communicating well on timing of monitoring in order to capture information prior to grazing and during the grazing season. Weather, grazing rotation, plant stage, and

other factors all cause adaptive management of the monitoring plan, but we are capturing the information needed to report out on grazing impacts on these plants.

**Activity Status as of July 2016:**

The plant specialists continue on schedule in accordance with the prescribed schedule. They have also agreed to look at a site adjacent to the River Bend Nature Center site where garlic mustard has been grazed over past two years. This is a Nature Conservancy owned site.

**Activity Status as of January 2017:**

All inventory and monitoring has been completed for the project.

Documentation is in draft form for the 2016 annual report. The final report is being worked on and will be completed by March. At that time we will begin the final report for submittal.

**Final Report Summary:**

Analysis of the project has been completed and is provided in detail in the following documents submitted with this final report:

- Prescribed Grazing (Goat) Project Final Report Covering Years 2014, 2015, and 2016
- Final Project Report Gamehaven Boy Scout Camp

Generally the results on invasive plant species are:

Results show little change in seasonal buckthorn sapling density, an increase in buckthorn seedlings, and variable results for adult buckthorn mortality. However, results show a change in the age stand of buckthorn within treatment areas as fewer live adult and large saplings were documented within the treatment sites. This change allows further treatments by various means more attainable.

Garlic mustard density was dramatically reduced in two growing seasons at the River Bend site, showing a 94% decrease in density by 2016.

Our monitoring was planned and carried out with an emphasis on stem counts of vegetation present. In hindsight, there would have been benefits to also measure the change in total understory composition. The report does note changes to the extent we could with the monitoring plan we carried out. However, there is another story obvious in the photographic monitoring in how the buckthorn sites moved from a very dense, almost impenetrable stand of invasive plants, to a stand of seedlings and saplings under 12" in height that is now a much more manageable situation.

As we have worked with numerous land managers, grazers, city administrators, and natural resource specialist we have come to realize that effective monitoring plans for this activity is a very valuable item. Through this project we have shared our systems of monitoring as a point of reference for others contracting similar services.

**ACTIVITY 2: Prescribed Multispecies Grazing of Target Species**

**Description:** At least two sites will be used for this project. One has already been identified (and used in the past) and the other will be identified through an RFP process. Once identified, these sites will be inventoried as to the type of ground cover, presence of invasive species, and other relevant factors as outlined in the previous activity.

Next, livestock producers will be sought to implement prescribed grazing. These producers would need to have the capacity to provide a large enough herd and appropriate animals for the grazing project. Producers would also need to have the capacity to move fences and animals as needed. Finally, any producer chosen for this

project would have to have the ability to measure and provide data on the evaluation points outlined in the previous activity.

The final decision on producers has not yet been made. Currently, a veterinarian with a small goat herd has provided the grazing herd. It may also be possible to use this project as an opportunity to work with young people managing herds or diverse members of the population. A side benefit of this project is to determine whether managing herds to control invasive species is a viable business model.

Once the site and producers are identified, a grazing plan will be developed for each site. In addition to involving the producers and landowners, grazing and other technical experts will also be involved in the development of this plan including Soil and Water Conservation District, NCRS, DNR and others. The plan will identify paddock locations, grazing duration, intensity and frequency during the plants' most vulnerable stage in the reproductive cycle to interrupt flower/seed production. Producers will implement the grazing plan, monitor, and adjust stocking rates as needed. They will also gather the data outlined in Activity 1.

**Summary Budget Information for Activity 2:**

**ENRTF Budget: \$ 23,777.00**  
**Amount Spent: \$ 23,677.00**  
**Balance: \$ 100.00**

**Activity Completion Date:**

<b>Outcome</b>	<b>Completion Date</b>	<b>Budget</b>
<b>1.</b> Select sites with target species & develop site-specific grazing plans (annually)	March 2014	\$8,000
<b>2.</b> Commit to management plans including grazing strategy, paddock enclosures & water sources	September 2015	\$11,777
<b>3.</b> Adjust stocking rates and duration to provide desired control of target species	July 2014	\$4,000

**Activity Status as of January 2014:**

Staff worked with a NRCS Grazing Specialist to determine sites for the project. Two sites have been determined to be the best fit with the project proposed in this grant. The City of Rochester Park and Recreation Department and Steele County Landfill have verbally committed to act as hosts for the project and formal agreements (as needed) are currently being finalized.

Hiawatha Valley RC&D staff worked closely with the local NRCS Grazing Specialist to make sure that the grazing stock was appropriate for the types of animals we anticipate having on the sites.

**Activity Status as of July 2014:**

An agreement has been signed with Jake Langeslag. Jake is owner of Aqua Eden, who does landscape improvements including pond design and construction. This site is near Faribault, MN. He is interested in goat grazing to improve the landscape if this project shows success in reducing invasive species. He is also very knowledgeable of birds in the area and how this project may improve habitat. He has fenced several smaller paddocks and will be managing up to eight. He has a draft grazing management plan prepared. He has also met several times with the NRCS grazing specialist in the development of this plan. This site will be grazed by goats of multiple type. We see potential on this site to work with the landowner on the economics of using grazing animals for invasive control, as well as some assessment of related environmental/habitat improvements resulting from grazing.

An agreement has also been signed with Steele County Landfill (landowner) and Nick Anderson (grazer). This site is on the north end of the landfill property, adjacent to a state wildlife management area, and has a deep

pond for watering. The site has moderate infestation of wild parsnip, which if left unchecked would be a major infestation in 3 to 4 years. Due to weather conditions fencing has been delayed but is underway now. The NRCS grazing specialist has been contacted to assist with a grazing plan. This will be completed and the fence location will be documented with a GPS system. This site will be grazed by cattle, primarily long-horns. We see potential on this site to compare grazing to other invasive control practices on the neighboring wildlife management area. Wet access to this site is a concern that remains, but the grazer feels he can make it work.

USDA NRCS and the local SWCD's have been very helpful in identifying potential sites and assisting those selected with management plans.

**Activity Status as of January 2015:**

The Steele County Landfill site was abandoned due to unsafe conditions created by flooding access to the site.

A contract was entered into with River Bend Nature Center as a substitute for the Steele County site. This has proven to be an excellent location. Species of concern include white sweetclover and buckthorn. Garlic Mustard was also discovered in 2014. Grazing of this area may not be recommended due to the presence of dwarf trout lily. This site is a very public site with many visitors. The goats have attracted attention of many individuals and groups. The site has had numerous visits from groups and wonderful media coverage in print and on WCCO radio. In addition, there have been spin off benefits through the creation of an invasive species workteam/club who are mapping and trying to control invasive plants on the site. Also, the Nature Center is working toward an invasive species management plan for the entire acreage, not just the area of the grazing plan. We have secured some additional funds for this effort as well as several very qualified volunteer and paid professionals.

The Aqua Eden site continues to be managed with very intensive grazing rotations.

**Project Status as of July 2015:**

Aqua Eden site: Minimal snow fall provided the opportunity to graze this site very early, in March. Electric drills were used to install the fencing, and provided adequate electric ground. We wanted to see which species the goats would consume at this early season grazing event. The vegetation was closely monitored to determine if native species would be grazed and damaged. The goats seemed to have a preference for the buckthorn and dogwoods in this situation. Perhaps the sap was more active, making the trees more palatable. In any case this early grazing was successful in regard to species consumed. The goat density was reduced in this tract due to reduced amount of browse available.

River Bend Nature Center site: The white sweetclover invading the prairie was not a problem this year. There are several possible explanations for this, including weather conditions as compared to last year, the plant being biannual, and perhaps grazing pressure. This species will warrant monitoring next year to determine the grazing impact. Two additional species were identified and the grazing plan adjusted to determine grazing impact on wild parsnip and garlic mustard. Garlic mustard was found on the site during an inventory of dwarf trout lily plants. The life cycle timing is very close to the dwarf trout lily, so grazing on sites with that plant was not deemed advisable. There were sites where the dwarf trout lily was not present that were grazed. Information available suggested that goats would not find this plant palatable. We found the opposite to be the case. They consumed the garlic mustard with enthusiasm. This particular site is along a riparian corridor, very steep with some rock outcrops and generally not accessible for mechanical, human or chemical treatment. It is an excellent site to attempt control with grazing and particularly with goats. In addition, it is adjacent to a residential area and the project was well received by the neighbors. We were able to graze a reasonably sized paddock prior to flower/seed production to determine the impact next spring. We also included the grazing of wild parsnip on site this year. Because the animals were on garlic mustard early, they were put in the wild parsnip after what would be optimal timing. This may have affected the palatability, and also allowed significant grass growth prior to grazing. The goats did consume the wild parsnip, but had a preference for the grasses. This is a case where

multispecies grazing may have an advantage with grass feeders consuming the bulk of the grass and goats forced to consume more wild parsnip. We did attempt a smaller scale multispecies effort on another site with horses and goats. The goats will now be moved back to the buckthorn site, which is less time sensitive.

**Project Status as of January 2016:**

Grazing of the Aqua Eden site is complete at this time. We will attempt to extend this at a reduced level if a minor budget amendment is approved. Otherwise we will continue monitoring the site through the year to determine the impacts of grazing.

The River Bend Nature Center site continues to provide a wealth of opportunities. The grazing described in July has continued. The white sweetclover site did not regrow in 2015 and was not grazed as a result. The supposedly unpalatable garlic mustard not only was deemed highly palatable by the goats, these goats were also amongst the healthiest through the season. We can not directly attribute the health to the plant, but is noteworthy and warrants further study/experience. It also suggests that knowledge specific to grazing animal and specific invasive plant is lacking and we would benefit from a system of capturing these experiences.

The grazer continues to be very cooperative and presents very good ideas on how to make the most of our project. He is also an excellent communicator and has shared what is being learned from the farmer standpoint on many occasions.

We met earlier this week to confirm the final grazing year plans and to coordinate with the plant specialists. All reports are up to date.

We have collaborated with the grazer in applications for a SARE grant to demonstrate effective invasive plant control with winter season grazing, and also for a corporate grant to help us develop a business model template for future grazers. These are positive spinoffs from this current grant and would be very valuable if funded.

**Activity Status as of July 2016:**

Grazing is occurring according to schedule. There is interest in extending the grazing contract, or finding other funding sources to continue this treatment on our sites and other sites of interest. To date we have not sought funding for expanding or extending similar funding. Interest is high and we have documented a list of potential sites to be grazed.

**Activity Status as of January 2017:**

Grazing was completed according to schedule during the final grazing period.

**Final Report Summary:**

Grazing had ended last fall for this project.

Through this project we developed grazing plans initially to address the vegetative change we intended. We were assisted in this planning process through technical specialists of USDA Natural Resources Conservation Service and very interested grazers.

Through the timeline of the project these initial plans required adjustment for reasons varying from a flooding that resulted in a total loss on one initial site, to accommodating public concerns with electric fencing around children. Having flexibility in the grazing plans is a key issue to address in this type of project. There are too many moving parts to use a cookie cutter plan that requires X head of livestock for a given time period on Y acres of land. We were able to provide some animal density numbers in the reports that will be helpful. There are also good figures from other sources that provide animal density ranges for planning purposes.

While we were forced to focus on goats as grazers primarily, we did on a small scale also incorporate horses on some paddocks. There is value in eliminating some of the grasses and other lush desirable vegetation in order to force the goats to go after the brushy undesirable plants. We are also seeing benefits in our winter grazing project, an off-shoot of this project, in snow and loss of grasses forcing the browsing instincts toward undesirable woody vegetation. Clearly this is an area we will learn more of in the future.

**ACTIVITY 3: Outreach, Education, BMP Development and Reporting**

**Description:** As the grazing implementation progresses, information will be distributed using a variety of methods including publications, websites, and media releases. At least twice during each year of the grant, field days will be held. The field day will educate the public and land use professional about effective alternative control methods for invasive plant management. Field days will include tours and will request input from participants for BMP development. Additional information will be shared in press releases and articles in appropriate publications and websites. Information will also be shared with other partners (for example site partners Gamehaven Ranch).

**Summary Budget Information for Activity 3:**

**ENRTF Budget: \$ 11,223.00**  
**Amount Spent: \$ 8,061.12**  
**Balance: \$ 3,161.88**

**Activity Completion Date:**

<b>Outcome</b>	<b>Completion Date</b>	<b>Budget</b>
<b>1. Host 2 field demonstrations per year (6 total)</b>	May 2016	\$6,500
<b>2. Develop multispecies prescribed grazing BMP for invasive plants and business enterprise considerations for a service grazing enterprise.</b>	March 2016	\$3,223
<b>3. Distribute results and final reporting</b>	June 2016	\$1,500

**Activity Status as of January 2014:**

No progress- these activities will coincide with the three grazing seasons.

**Activity Status as of July 2014:**

The Langeslag site has scheduled a tour for a local garden organization. They have shown interest in how the goats are impacting the various plants and wildlife habitat.

**Activity Status as of January 2015:**

The project results to date were shared at a grazing workshop in Rushford, MN. This workshop was hosted by Hiawatha Valley RC&D and MN DNR. The master gardener tour was also completed as scheduled on the Aqua Eden (Langeslag) site. In addition, a brochure was produced to help inform individuals of the project, print media has had stories on the grazing of invasive plants, social media of the grazer and River Bend Nature Center has featured the project throughout the year, and the project was shared on WCCO radio.

**Project Status as of July 2015:**

A meeting and tour was held with MN Sustainable Farming Association, UM Extension, Three Rivers Park District, Private Consultants, RBNC staff and Hiawatha Valley RC&D leadership to discuss the project, results, consider recommendations, and need for BMP's. In addition, we discussed the business enterprise opportunities grazing of IS might have for beginning farmers. We agreed to continue these discussions and assist each other with this and similar projects.

Seventeen individuals from Hiawatha Valley RC&D and local SWCD and NRCS personnel discussed and toured the project on July 27<sup>th</sup>. A good discussion was held. The goats were on the wild parsnip site at the time. We

also discussed the need for improved BMP's for grazing of IS species and some of the shortcomings in guidance documents.

The grazer has shared the project success on Fox 9 News, and through you tube videos.

We have initiated the BMP development process. Several good examples have been found. In MN the BMP's will likely be supplements or revisions of local Field Office Technical Guides, SWCD/BWSR guidance documents, of DNR IS management guides. All are lacking in use of grazing as a management tool. Some of the shortcomings we will attempt to address are: need for databases searchable for a tract of land rather than by invasive species in order to improve overall awareness of a landowner prior to identifying a problem plant – usually too late; and, need for grazing schedules similar to the old carrying capacity charts that indicate the best time to impact through grazing, normal flowering/seed set dates, and species preferences or toxicity. This level of science will be beyond the scope of this funded project but we do seek to provide examples for consideration through collecting the best available knowledge from the team we've put together.

We are also working to develop a model grazing management plan for the entire RBNC site. This process will provide us the opportunity to further identify shortcomings in guidance documents that slow or prevent incorporation of IS control at the decision maker level.

#### **Project Status as of January 2016:**

NRCS has been actively engaged with this project through their state grazing specialist John Zinn. John has prepared draft fact sheets and standards for grazing as a tool in weed management. These documents are the foundation of communicating BMP's in MN as the local and state agencies utilize the NRCS local field office technical guide as their conservation practice standards. These documents will provide the needed information to provide incentives to landowners in future years.

The grazer was nominated and invited to present the project at the MN Organic Farming Conference earlier this month. The session was well attended with a full room, and there was a great deal of dialogue and interest amongst the attendees.

The meeting of organizations interested in service grazing has now organized as a Network of the MN Sustainable Farmers Association. This provides some organizational and risk management opportunities to the group. It has met two more times and is becoming very active in furthering the cause of service grazing as an enterprise and tool to control undesirable plants.

The public continues to enjoy the goats at River Bend Nature Center. RBNC staff has also been excited about them and relate that the goats are very popular with visitors. We did put out signs this year crediting the ENTRF funds received through LCCMR. Brochures were also produced and will be republished for next year.

#### **Activity Status as of July 2016:**

Local organizations continue to tour the site. We are planning an event for fall where we can share our project outcomes to date with other resource managers and professionals. We are also gathering ideas and recommendations on improving the BMPs within MN for grazing of invasive plants.

#### **Activity Status as of January 2017:**

Local organizations continue to tour the site. A significant tour was conducted this fall (brochure and flyer provided with this report). Although the day was cool and drizzly, we had approximately 45 in attendance from across MN. RC&D, grazer and monitoring specialist were all on program. The audience was a mix of private landowners, public land managers, resource professionals, and local agencies. An additional grant was received



from Thrivent Financial to provide some signage, printing, and refreshments. In addition, we have participated in the development of an “Environmental Services Grazing Network” with the MN Sustainable Farming Association. Through them we will be posting the BMP’s and a template business plan for public use as a part of our project report/completion.

### **Final Report Summary:**

During the final time period our focus has been on completing the final reports and their publication. Those reports are provided with this report. We have published a supply of these documents for distribution and will have them available on the Hiawatha Valley RC&D web page. We will offer links to this information to the MN Sustainable Farming Association, Ecological Grazing Services Network.

John Beckwith also met with the MN SFA Network leaders and we are planning additional professional and public events to improve awareness of grazing as a tool to control invasive terrestrial plants.

During this time period the project was shared with the Root River Watershed Advisory Committee and also was the focus of the May meeting of the Hiawatha Valley RC&D Council.

A summary of dissemination of information throughout the project period is provided below.

### **V. DISSEMINATION:**

**Description:** At least twice during each year of the grant, field days will be held. The field day will educate the public and land use professional about effective alternative control methods for invasive plant management. Field days will include tours and will request input from participants for BMP development. Additional information will be shared through written and on-line media. Media to be included are regional farm publications, local news sources, and through related agency publications such as USDA and Soil and Water Conservation District Newsletters. Finally, information will be shared with other partners (for example, site partners Gamehaven Ranch).

#### **Activity Status as of January 2014:**

No progress.

#### **Activity Status as of July 2014:**

The Langeslag site has scheduled a tour for a local garden organization. They have shown interest in how the goats are impacting the various plants and wildlife habitat.

We have begun discussion of having a tour with a state forester’s organization later in the year. At that time we will have more to share, and the mosquitos will hopefully be fewer in number.

#### **Activity Status as of January 2015:**

The project results to date were shared at a grazing workshop in Rushford, MN. This workshop was hosted by Hiawatha Valley RC&D and MN DNR. The master gardener tour was also completed as scheduled on the Aqua Eden (Langeslag) site. In addition, a brochure was produced to help inform individuals of the project, print media has had stories on the grazing of invasive plants, social media of the grazer and River Bend Nature Center has featured the project throughout the year, and the project was shared on WCCO radio. Brochures were also shared at the annual conventions of the Association of Minnesota Counties and Soil and Water Conservation Districts at the MN Association of RC&D Councils exhibit.

#### **Project Status as of July 2015:**

A meeting and tour was held with MN Sustainable Farming Association, UM Extension, Three Rivers Park District, Private Consultants, RBNC staff and Hiawatha Valley RC&D leadership to discuss the project, results, consider recommendations, and need for BMP's. In addition, we discussed the opportunities grazing of IS might have for beginning farmers. We agreed to continue these discussions and assist each other with this and similar projects.

Seventeen individuals from Hiawatha Valley RC&D and local SWCD and NRCS personnel discussed and toured the project on July 27<sup>th</sup>. A good discussion was held. The goats were on the wild parsnip site at the time. We also discussed the need for improved BMP's for grazing of IS species and some of the shortcomings in guidance documents.

The grazer has shared the project success on Fox 9 News, and through you tube videos.

Through sharing of this project we have also requested to present at the MN organic agriculture conference in January of 2016, and been asked to work with the Midwest IS conference in October of 2016 in La Crosse, WI. Our participation will be dependent on obtaining funds for travel and any registration. We do not have this in our budget at this time.

#### **Project Status as of January 2016:**

Signs were posted at the River Bend Nature Center grazing site appropriately crediting the project and to provide basic information of why there are goats there. In addition brochures are available on site.

The group identified in the previous status report has organized now into a functioning network under the umbrella of MN SFA. It has expanded to 12 individuals and will now expand further to other organizations, agencies and individuals interested in service grazing enterprises.

The grazer has done an outstanding job of sharing his experience, although not always crediting the project or sponsors to the extent we would hope. We continue to work with him and provide him wording to credit appropriately. He is a wonderful vendor to work with though, and has made greater efforts to acknowledge the funding and other sources of project collaboration.

The grazer did present the project to date at the MN Organic Farming Conference. John Beckwith met with the Minnesota Invasive Species Advisory Council on July 28 to share the project to date and issues being encountered that could benefit from their attention.

#### **Activity Status as of July 2016:**

This project continues to receive excellent coverage in various news media.

#### **Activity Status as of January 2017:**

This project has become a foundation piece for several related projects underway. All of these combined continue to have significant media coverage from TV, radio and newspaper. The grazer spoke at a significant invasive species meeting in La Crosse, WI which also generated a great deal of attention to the project.

#### **Final Report Summary:**

##### **Overall Project Outcomes and Results**

The Hiawatha Valley Resource Conservation and Development Council, Inc., (HVRCD) began implementation of a program to control terrestrial invasive species through grazing with a pilot project in 2011. With the help of the USDA-NRCS a baseline inventory of selected sites was initiated along with documenting the effects of grazing on terrestrial invasive species.

In 2013 HVRCD received funding through the Environmental and Natural Resources Trust Fund (ENRTF). The project goals are: (1) develop a cost effective and environmentally friendly alternative to chemical and mechanical control methods for these species, (2) demonstrate that multi-species grazing techniques can be used effectively to control invasive plants, (3) distribute results during field day demonstrations to connect livestock producers with landowners and (4) develop a Best Management Practice for invasive species control using grazing management as a component.

Three sites were selected as part of this project; Gamehaven Boy Scout Camp, approximately 10 miles southeast of the City of Rochester; River Bend Nature Center in the City of Faribault; and Eden Acres, roughly 5.4 miles southeast of the City of Faribault.

Results show little change in seasonal buckthorn sapling density, an increase in buckthorn seedlings, and variable results for adult buckthorn mortality. However, results show a change in the age stand of buckthorn within treatment areas as fewer live adult and large saplings were documented within the treatment sites. This change makes further treatments by various means more attainable.

Garlic mustard density was dramatically reduced in two growing seasons at the River Bend site, showing a 94% decrease in density by 2016.

Additional documents included with this report: Prescribed Grazing (Goat) Project Final Report Covering Years 2014, 2015, and 2016; Final Project Report Gamehaven Boy Scout Camp; Minnesota Practice 528 Biological Brush Management Implementation Guide; Minnesota Practice Implementation Guide Biological Herbaceous Weed Control 528.

### **Project Results Use and Dissemination**

- 15) We were very fortunate to have one of our sites within the River Bend Nature Center near Faribault, MN. Small grazing animals created a great deal of interest amongst their visitors and staff. Handouts were available explaining the project, local newspapers did feature stories, and River Bend shared photos and explanations on their website. Signs were posted at the River Bend Nature Center grazing site appropriately crediting the project and to provide basic information of why there are goats there. These signs also had qr code allowing cell phone users more detailed information on the project. This kept the project in the news during 2015 and 2016 on a regular basis.
- 16) Also at the River Bend site, a volunteer group was organized to combat invasive species. This group conducted buckthorn removal activities through mechanical and chemical means. They also monitored and sought to eliminate other terrestrial invasive plants in the Center. Working along with the grazing efforts provided the members firsthand knowledge of grazing benefits.
- 17) Tours were conducted involving garden clubs, Soil and Water Conservation District employees, USDA-NRCS, other professionals, public land managers, farmers and potential grazers
- 18) The project results were shared at a grazing workshop in Rushford, MN. This workshop was hosted by Hiawatha Valley RC&D and MN DNR. The workshop provided information from a number of sources on the opportunities available for starting a grazing business to control undesirable plants.
- 19) The project has been featured on several radio and television stations in the Twin Cities market over the projects timeframe.
- 20) Project information was shared through brochures at annual conferences of the Association of MN Counties and also the MN Association of Soil and Water Conservation Districts through the MN Association of RC&D Councils exhibit booth.

- 21) A meeting and tour was held with MN Sustainable Farming Association, UM Extension, Three Rivers Park District, Private Consultants, RBNC staff and Hiawatha Valley RC&D leadership to discuss the project, results, consider recommendations, and need for BMP's. In addition, we discussed the opportunities grazing of invasive species might have for beginning farmers.
- 22) The project was presented at the 2016 MN organic agriculture conference and also the 2016 Midwest invasive species conference in LaCrosse, WI.
- 23) The Grazer and Hiawatha Valley RC&D are actively engaged in, and important to the initiation of, a network of ecological grazing partners organized under the MN Sustainable Farming Association.
- 24) Through an AgStar grant we are also utilizing the knowledge gained to develop a business plan model for ag entrepreneurs interested in starting an ecological services grazing enterprise.
- 25) John Beckwith met with the Minnesota Invasive Species Advisory Council to share the project to date and issues being encountered that could benefit from their attention.
- 26) The state grazing specialist of USDA-Natural Resources Conservation Service was very engaged in development and management of this project. During that timeframe he also utilized the information from this project, along with other resources, to develop job sheets for use of grazing in controlling invasive plants in both brush and herbaceous settings. Those job sheets are included with this report and also available on-line through USDA-NRCS.
- 27) The reports were published in hard copy in a limited supply and will be used as handouts for folks interested in the project results.
- 28) The reports will also be put on line on the Hiawatha Valley web page. They will also be made available to link from the MN Sustainable Farming Website – Ecological Grazing Network page.

**VI. PROJECT BUDGET SUMMARY:**

**A. ENRTF Budget:**

Budget Category	\$ Amount	Explanation
Personnel:	\$ 0	
Professional/Technical/Service Contracts:	\$ 47,000	Herdsmen/Monitoring contractors (0.32 FTE), Inventory and monitoring contractor (0.35 FTE), project manager (0.13 FTE)
Equipment/Tools/Supplies:	\$ 0	Chemicals for control plots
Printing:	\$ 4,000	General copying required for detail site plans and evaluations; publication of results as handouts for related tours and meetings; publishing results of demonstration, BMP's, and economics on an appropriate website; and, publication and printing of the BMP document to be shared with conservation professionals and livestock farmers.
Travel Expenses in MN	\$1,000	Mileage, Lodging, Meals
Other:	\$0	
<b>TOTAL ENRTF BUDGET:</b>	<b>\$ 52,000</b>	

**Explanation of Use of Contracted Staff Also Serving as Executive Director:** The Hiawatha Valley RC&D is a small nonprofit serving southeast Minnesota. At this time staff assistance is provided through contracted services of an executive director/program manager, a temporary part-time contracted program manager assigned a specific project during the funding period of that project (ending September 30, 2013), and bookkeeping services. The contracted executive director/program manager would be assigned this project due to the three year timeframe associated with the project, and the experience of that individual in working with farmers of southeast Minnesota. Time and expenses of this individual are accounted for in detail, and not comingled with the responsibilities carried out in service as executive director. We do request approval to utilize the contracted executive director/program manager for project management of this proposal.

**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:** 0.80

**B. Other Funds:**

Source of Funds	\$ Amount Proposed	\$ Amount Spent	Use of Other Funds
<b>Non-state</b>			
In-kind	\$ 24,000	\$25,486	Professionals involved in development and monitoring of Grazing plans
In-kind	\$ 36,000	\$36,000	Grazing land (value of rental)
<b>State</b>			
<b>TOTAL OTHER FUNDS:</b>	<b>\$ 60,000</b>	<b>\$61,486</b>	

**VII. PROJECT STRATEGY:**

<b>A. Project Partners:</b>	John Zinn	NCRS-USDA	\$0
	George Poch	Private Soil Scientist	\$0
	Mike Muzzy	NRCS-USDA	\$0
	Kurt Hinz	Minnesota DNR	\$0

**B. Project Impact and Long-term Strategy:**

Terrestrial invasive plants including buckthorn, wild parsnip, garlic mustard and others are becoming dominate species at an alarming rate in many ecological sites in SE Minnesota. Present chemical and mechanical control methods are costly, effective only in the short-term or have other negative environmental impacts. Establishing a BMP using grazing for wider spread use to control invasive species has potential in several areas: minimizing use of physical or chemical interventions, cost effectiveness, introduction of a business model for managing herds for invasive species management, and of course, controls of invasive plants and return to native species.

This project builds on grazing efforts already initiated by Hiawatha Valley RC&D during the 2011 and 2012 growing seasons and expands on federal funds previously earmarked for the Driftless Area Initiative. We envision this project will be the mechanism to transfer small localized prescribed grazing knowledge and sustainable techniques to a broader audience across the SE Minnesota Driftless Area.

**C. Spending History:**

<b>Funding Source</b>	<b>M.L. 2007 or FY08</b>	<b>M.L. 2008 or FY09</b>	<b>M.L. 2009 or FY10</b>	<b>M.L. 2010 or FY11</b>	<b>M.L. 2011 or FY12-13</b>
USDA-NRCS Conservation Technical Assistance Program-Driftless Area Initiative					\$16,500

**VIII. ACQUISITION/RESTORATION LIST: N/A**

**IX. MAP(S): N/A**

**X. RESEARCH ADDENDUM: N/A**

**XI. REPORTING REQUIREMENTS:**

Periodic work plan status update reports will be submitted not later than January 2014, July 2014, January 2015, July 2015, January 2016, July 2016 and January 2017. A final report and associated products will be submitted between June 30 and August 1, 2017 as requested by the LCCMR.

**Final Attachment A: Budget Detail for M.L. 2013 Environment and Natural Resources Trust Fund Projects**

**Project Title:** *Controlling Terrestrial Invasive Plants with Grazing Animals*

**Legal Citation:** M.L. 2013, Chapter 52, Sec., Subd. 06g and M.L. 2014, Chapter 226, Section 2, Subdivision 19

**Project Manager:** John Beckwith

**M.L. 2013 ENRTF Appropriation:** \$ 52,000

**Project Length and Completion Date:** July 2017 (Four Years)

**Date of Update:**06/30/2017

ENVIRONMENT AND NATURAL RESOURCES TRUST FUND BUDGET	Activity 1 Budget	Amount Spent	Balance	Activity 2 Budget	Amount Spent	Balance	Activity 3 Budget	Amount Spent	Balance	TOTAL BUDGET	TOTAL BALANCE
<b>BUDGET ITEM</b>	<i>Inventory, Monitoring, Evaluation &amp; Documentaiton</i>			<i>Prescribed Multispecies Grazing of Target Species</i>			<i>Outreach, Education, BMP Development and Reporting</i>				
<b>Professional/Technical/Service Contracts</b>											
John Beckwith, Project Manager: project facilitation, coordination, monitoring, outreach and reporting	2000	1999	1	2000	2000	0	5223	4858	365	9223	366
TBD (competitive bid): vegetative monitoring, grazing plan development, manage and monitor control plots, BMP development	14400	14213	187	4327	4327	0	1700	1700	0	20427	187
Landowner/Herdsman (TBD): Service Contract to manage herd, plan decision maker, implement and manage BMP, monitor economic, herd and vegetative status.	0	0	0	17350	17350	0			0	17350	0
<b>Equipment/Tools/Supplies</b>											
chemicals/manual removal for control plots	0	0	0	0	0	0	0	0	0	0	0
<b>Printing</b>											
General copying (Sharing of Inventory and Evaluation Plans as well as Grazing Plans and Findings between partners, Outreach for Field Days)	100	0	100	100	0	100	300	47	253	500	453
Publications and Information (Development, Printing and Distribution of final print piece on Project Findings/Best Practices)	0	0	0	0	0	0	3500	1268	2232	3500	2232
<b>Travel expenses in Minnesota</b>											
mileage, lodging, meals. (To Field Days and for management of herders/supervision of sites)	500	154	346	0	0	0	500	188	312	1000	658
<b>COLUMN TOTAL</b>	<b>\$ 17,000</b>	<b>\$ 16,366</b>	<b>\$ 634</b>	<b>\$ 23,777</b>	<b>\$ 23,677</b>	<b>\$ 100</b>	<b>\$ 11,223</b>	<b>\$ 8,061</b>	<b>\$ 3,162</b>	<b>\$ 52,000</b>	<b>\$ 3,895</b>