

# Evaluation of ENRTF Restoration Project

**Report Date:** August 12, 2016

**Legal Citation:** M.L. 2013, Chp. 52, Sec. 2, Subd. 04b

**Project Title:** Scientific & Natural Area Restoration, Enhancement & Citizen Engagement

**Project Manager:** Margaret Booth

**Parcel Name:** Prairie Smoke Dunes Scientific and Natural Area

**Parcel Ownership:** DNR administered and owned Scientific and Natural Area

## **Completed Restoration and Management Plans Consistent with ENRTF Requirements:**

Prairie Smoke Dunes SNA Adaptive Management Plan (September 2013)

**Summary of Plan Outcomes:** Desired future condition: mesic (UPn23) to wet (WPn53) prairie native plant communities.

Reestablishment of these plant communities will provide additional habitat for rare species which have been documented on this site and in similar communities within Sundahl Township. The SNA contains a population of Federally Threatened Western Prairie Fringed Orchid and Northern Single-spike sedge in the undisturbed wet brush prairie portions of this site.

## **Activities Completed Through This Project:**

A number of management activities were completed using this funding source in the time period between DNR Fiscal Years 2014-2016. These included native prairie reconstruction on approximately 200 acres of old field; permanent firebreaks; invasive woody species control; and site clean-up.

One of the major projects that occurred at this site was the reconstruction of two old farmed fields. A reconstruction takes a lot of planning beginning with site preparation which typically includes multiple years of tillage and spraying, seed harvest, seed planting and follow up maintenance.

The seed harvested for this site came from similar native plant communities at three SNA's located nearby Prairie Smoke Dunes, one WMA, Clay County land-Felton, and a Native Prairie Bank Easement. Seed was harvested from the Santee Prairie and Sandpiper Prairie SNA's for this project. Both sites contain high quality mesic prairie (UPn23) and wet Prairie (WPn53) species. Both sites were custom combined during fall of 2014. Additionally, a native remnant wet prairie mix from the Wambach WMA was used. A dry prairie seed mix (UPn12) from the Bicentennial Prairie SNA was harvested by SNA staff in 2014. Seed from the Clay County land (UPn12b) harvested at Felton in 2011 was used for the drier portions of the southern field at Prairie Smoke Dunes and was seeded on the SNA the following spring, in 2015 via broadcasting on the snow in March. Seed was also gathered from a Native Prairie Bank Easement, privately owned but in the SNA Program's administrative purview. This site has a mix of mesic and wet prairie species (WPn53b) as well and was used for the larger of the two restoration areas. A total of 7,545 pounds of bulk seed was used on both fields.

Multiple contracts using private vendors for site preparation and custom planting were made using this funding over the 3 year period. These included disking, tilling, spraying and seeding. The larger northern field was seeded in June of 2016 by a broadcast method followed up by a soil packing occurrence to ensure good seed to soil contact.

Additionally, multiple sites within this SNA but not within the field restoration areas, were treated for woody invasive species including common buckthorn and honeysuckle. This was accomplished using a cut and stump treatment with herbicide. Other treatments included girdling aspen in several areas near the restored fields. The Conservation Corps of Minnesota was contracted to implement this work over several seasons as well as the removal of woody species to create a permanent firebreak through the mesic hardwoods in the central portion of this SNA.

Woody species that were removed during these projects were piled and burned on disturbed ground during the late winter/early spring of 2015 by DNR staff.

**Map of Restoration project:** Attached below as Appendix A

**Ongoing Management Needs & Funding:**

Ongoing management will include clipping of the restoration in the first two years if warranted for invasive species and/or to reduce competition of non-native species; use of prescribed fire; and brush management and targeted herbicide treatments as needed to control invasive and non-native species.

These tasks will be done with funding available through appropriations by the legislature, including future ENRTF and Outdoor Heritage Fund appropriations. Future use of CCM crews is proposed to aide in ongoing management activities, including native seed collection, invasive species control, prescribed fire preparation and implementation.

[Initial Evaluation](#)

**Dates:** June 2016

**Summary of Evaluation:** The reconstruction work at Prairie Smoke Dunes is in its initial and early phase. The south 40 acres that was seeded in 2015 is starting to express itself in this part of the SNA. The entire seeding on both portions of the reconstructed areas was clipped this June to help reduce annual weed competition. SNA staff will be able to evaluate the entire site better by years three & four (2018-19).

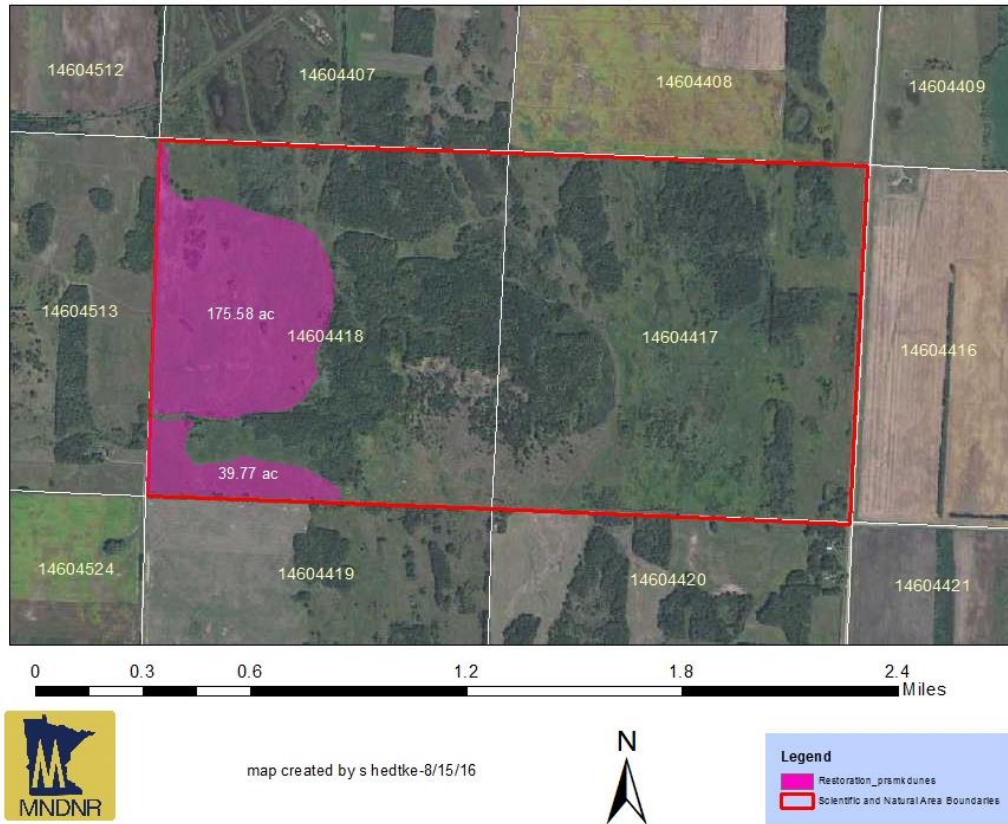
[Three Year Evaluation](#)

**Proposed Dates:** [insert month(s) & year]

**Summary of Evaluation:**

## Appendix A. Restoration Area at Prairie Smoke Dunes SNA

Prairie Restoration Areas at Prairie Smoke Dunes SNA



## Appendix B: List of Species Seeded

### Wambach WMA

- Big Bluestem (*Andropogon gerardi*)
- Indiangrass (*Sorghastrum nutans*)
- Little Bluestem (*Schizachyrium scoparium*)
- Golden Alexanders (*Zizia aurea*)
- Tall dropseed (*Sporobolus compositus*)
- Bedstraw (*Galium spp*)
- Kalms Brome (*Bromus kalmii*)
- Aster (*Aster spp*)
- Goldenrod (*Solidago spp*)

### Santee Prairie SNA

- Big Bluestem (*Andropogon gerardi*)
- Culvers root (*Veronicastrum virginicum*)
- Mountain mint (*Pycnanthemum spp*)
- Meadow rue (*Thalictrum spp*)
- Black-eyed Susan (*Rudbeckia hirta*)
- Sunflower (*Helianthus spp*)
- Leadplant (*Amorpha canescens*)
- Purple prairie clover (*Dalea purpurea*)
- White death camas (*Zigadenus elegans*)
- Lousewort (*Pedicularis spp*)
- Prairie cinquefoil (*Potentilla argute*)
- Dogbane (*Apocynum spp*)
- Prairie dropseed (*Sporobolus heterolepis*)
- Stiff goldenrod (*Solidago rigida*)
- Gayfeather (*Liatris spp*)
- Bearded wheatgrass (*Elymus trachycaulus*)
- Muhly grass (*Muhlenbergia spp*)
- Wild licorice (*Glycyrrhiza lepidota*)
- Alumroot (*Heuchera spp*)
- Wild onion (*Allium spp*)
- Early sunflower (*Heliopsis helianthoides*)
- Prairie cordgrass (*Spartina pectinata*)
- Milkweed (*Asclepias spp*)
- Switchgrass (*Panicum virgatum*)
- Spotted water-hemlock (*Cicuta maculata*)

### Sandpiper Prairie SNA

- Big Bluestem (*Andropogon gerardi*)
- Side-oats grama (*Bouteloua curtipendula*)
- Prairie dropseed (*Sporobolus heterolepis*)
- Tall dropseed (*Sporobolus compositus*)
- Prairie cordgrass (*Spartina pectinata*)
- Sunflower (*Helianthus spp*)
- Wild onion (*Allium spp*)

### Sandpiper Prairie SNA con't

- Northern bedstraw (*Galium boreale*)
- Little Bluestem (*Schizachyrium scoparium*)
- Milkweed (*Asclepias spp*)
- Gayfeather (*Liatris spp*)
- Purple prairie clover (*Dalea purpurea*)
- Meadow rue (*Thalictrum spp*)
- Golden Alexanders (*Zizia aurea*)
- Bearded wheatgrass (*Elymus trachycaulus*)
- Bergamot (*Monarda fistulosa*)
- Mountain mint (*Pycnanthemum spp*)
- Muhly grass (*Muhlenbergia spp*)
- Culvers root (*Veronicastrum virginicum*)
- Goldenrod (*Solidago spp*)
- Wild licorice (*Glycyrrhiza lepidota*)
- Leadplant (*Amorpha canescens*)
- Wolfberry (*Symphoricarpos spp*)
- Switchgrass (*Panicum virgatum*)
- Black medick (*Medicago lupulina*)
- Indiangrass (*Sorghastrum nutans*)

### Bicentennial Prairie SNA

- Big Bluestem (*Andropogon gerardi*)
- Prairie dropseed (*Sporobolus heterolepis*)
- White prairie clover (*Petalostemon candidus*)
- Purple prairie clover (*Dalea purpurea*)
- Leadplant (*Amorpha canescens*)
- Narrow-leaf coneflower (*Echinacea angustifolia*)
- Northern bedstraw (*Galium boreale*)
- Bearded wheatgrass (*Elymus trachycaulus*)
- Blue grama (*Bouteloua gracilis*)
- Stiff goldenrod (*Solidago rigida*)
- Prairie cinquefoil (*Potentilla arguta*)
- Side-oats grama (*Bouteloua curtipendula*)
- Indiangrass (*Sorghastrum nutans*)
- Little Bluestem (*Schizachyrium scoparium*)
- Prairie cordgrass (*Spartina pectinata*)

### Strand NPB-south

- Big Bluestem (*Andropogon gerardi*)
- Gayfeather (*Liatris spp*)
- Kalms Brome (*Bromus kalmii*)
- Sunflower (*Helianthus spp*)
- Prairie dropseed (*Sporobolus heterolepis*)
- Bearded wheatgrass (*Elymus trachycaulus*)
- Prairie cordgrass (*Spartina pectinata*)



### Strand NPB-south con't

- Spotted water-hemlock (*Cicuta maculata*)
- Golden Alexanders (*Zizia aurea*)
- Goldenrod (*Solidago spp*)
- Aster (*Aster spp*)
- Eupatorium (*Eupatorium spp*)
- Northern bedstraw (*Galium boreale*)
- Muhly grass (*Muhlenbergia spp*)

### Felton Prairie-Clay County land

No species list available-see photos of select species



## Appendix C: Photographs:

### Felton Prairie-Clay County land



## Evaluation of ENRTF Restoration Project

**Report Date:** June 30, 2016

**Legal Citation:** M.L. 2013, Chp. 52, Sec. 2, Subd. 04b

**Project Title:** Scientific & Natural Area Restoration, Enhancement, and Citizen Engagement

**Project Manager:** Margaret (Peggy) Booth

**Parcel Name:** Blue Devil Valley Scientific and Natural Area

**Parcel Ownership:** DNR administered and owned Scientific and Natural Area

**Completed Restoration and Management Plans Consistent with ENRTF Requirements:** Management Plan Blue Devil Valley SNA (March, 1992) and Blue Devil Valley SNA Adaptive Management Plan and Inventory (2016 draft)

**Summary of Plan Outcomes:** Desired future condition: native prairie or savanna (UPs13, UPs23, UPs14, UPs24) native plant community. Reestablishment of this plant community will provide additional habitat for rare species; such as five-lined skink which have been documented on the Blue Devil Valley SNA and in similar communities within Minnesota Falls Township. Restoration of prairie plants will also allow prescribed fire to be used to control buckthorn seedlings.

### Related Activities:

The Blue Devil SNA was cleared of existing stands of buckthorn and honeysuckle in previous years. Ongoing follow-up treatments have been required and conducted to try to control buckthorn regrowth and seedling recruitment. Treatments included: cut/treat treatments, foliar spray of early re-sprouts, weed torches, and herbicide wicking on buckthorn. The history of extensive buckthorn cover and the impacts of the buckthorn control methods have largely eliminated nearly all vegetation from parts of the SNA.

### Activities Completed Through This Project:

The restoration completed through this appropriation targeted an approximately one acre restoration site which was nearly devoid of native vegetation. Nearly 200 pounds of native grass and wildflower seed was collected from nearby native prairie bank easements (Swedes Forest 20-1, 20-2, and 21-1). The bulk of the seed came from previous mechanical harvesting efforts in 2011 (prior to this appropriation). Additional seed was harvested, mostly by hand, in the fall of 2014. At least 25 species of native grass and wildflowers were collected. The seed mix was dominated by Indian grass, big bluestem, and little bluestem. See partial species list in Appendix A

The restoration site was seeded on January 22<sup>nd</sup>, 2015 with 200 pounds of native seed, and seed was spread over snow and exposed soil under frozen ground conditions. This small seeding was done by hand, and applied in areas with good soil to seed contact. Slash piles, rock outcrops, and other heavily shaded areas were avoided to ensure adequate sunlight for seed germination.

**Map of Restoration project:** Attached below as Appendix B

**Ongoing Management Needs & Funding:**

Ongoing management for the short-term will focus on control of the invasive woody species in the SNA. The control measures will certainly impact the survival of seeded material. Additional inter-seeding may be required once the buckthorn is determined to be better under control. Buckthorn management may include; prescribed fire, weed torch use on seedlings, cut/treat treatments; and targeted herbicide treatments. Activities will be done with funding available through appropriations by the legislature, including future ENRTF and Outdoor Heritage Fund appropriations. Future use of CCM crews will be considered to aide in ongoing management activities, including native seed collection, invasive species control, prescribed fire preparation and implementation. CCM have been involved with several aspects of the buckthorn control to date (and prescribed fire on other parts of the SNA).

[Initial Evaluation](#)

**Dates:** June 2016

**Summary of Evaluation:**

Only a few native species are present in the restoration area and native species ground cover is sparse. Ground layer is dominated by common buckthorn and non-native herb species including motherwort. Common buckthorn seedlings which have germinated since the most recent seeding have created a nearly closed canopy over bare soil conditions. This is still early in the plant establishment period for this type of restoration.

Because of overlapping seeding and buckthorn control efforts it is difficult to know if a dearth of observed plants may be due to poor or suppressed germination or seedling establishment due to the allelopathic effect of buckthorn, or whether it may be due to the impacts of current buckthorn control efforts. Additionally, it may be difficult to determine if plants in the target area are remnant hold-outs that survived conditions to this point, if they are evidence of natural recolonization, or if they may be from the seeding efforts. Throughout the next several years, buckthorn control efforts will continue. It is anticipated that the re-establishment of native vegetation will assist with efforts to reintroduce prescribed fire, increase native species diversity, and to manage non-native species. Additional efforts to re-establish prairie species will likely be required in the future.

[Three Year Evaluation](#)

**Proposed Dates:** July/ August 2018 or 2019

**Summary of Evaluation:**

## Appendix A. Partial list of species seeded

Big Bluestem	<i>Andropogon gerardii</i>
Indian Grass	<i>Sorghastrum nutans</i>
Little Bluestem	<i>Schizachyrium scoparium</i>
Side Oats grama	<i>Bouteloua curtipendula</i>
Common Yarrow	<i>Achillea millefolium</i>
Leadplant	<i>Amorpha canescens</i>
Prairie Rose	<i>Rosa arkansana</i>
White Sage	<i>Artemisia ludoviciana</i>
Green Milkweed	<i>Asclepias viridiflora</i>
Short-leaf Coneflower	<i>Echinacea angustifolia</i>
Wild Bergamot	<i>Monarda fistulosa</i>
Yellow Coneflower	<i>Ratibida pinnata</i>
Purple Prairie Clover	<i>Dalea purpurea</i>
Prairie Cinquefoil	<i>Potentilla arguta</i>
Wild onion	<i>Allium</i> sp.
Aster Species	<i>Aster</i> sp.



## Appendix B. Parcel Map: Blue Devil Valley Scientific and Natural Area Showing restoration site



# Evaluation of ENRTF Restoration Project

**Report Date:** June 30, 2016

**Legal Citation:** M.L. 2013, Chp. 52, Sec. 2, Subd. 04b

**Project Title:** Scientific & Natural Area Restoration, Enhancement, and Citizen Engagement

**Project Manager:** Margaret (Peggy) Booth

**Parcel Name:** Cedar Mountain Scientific and Natural Area

**Parcel Ownership:** DNR administered and owned Scientific and Natural Area

**Completed Restoration and Management Plans Consistent with ENRTF Requirements:** Restoration Plan: Cedar Mountain SNA (2014) and Cedar Mountain SNA Adaptive Management Plan and Inventory (2011)

**Summary of Plan Outcomes:** Desired future condition: Southern Mesic Prairie (Ups23a) or Southern Dry Hill Prairie (Ups13d) native plant community.

Reestablishment of this plant community will provide additional habitat for native species which have been documented on at the Cedar Mountain SNA and in similar communities within Sherman Township. It will reduce the habitat loss and fragmentation resulting from extensive brush encroachment into the prairie and rock outcrop prairie communities.

## **Related Activities:**

In the fall of 2011, the restoration areas were cut using a brush mower. Cut stumps were treated with herbicide to prevent re-sprouting. Slash piles were burned in winter 2013-2014.

Native seed was hand harvested from Morton Outcrops SNA in 2011. On November 30, 2011, eleven pounds of native seed was hand seeded across the bare soil areas (which was formerly heavily shaded by plum) in the target area.

Prescribed fire was applied to the restoration site and adjacent native plant communities in the spring of 2014, (though many of the areas targeted for restoration did not have sufficient fuel to carry a fire). In many portions of the 2011 tree removal area the native vegetation has started to respond; however, the areas that contained the highest density woody vegetation, including wild plum, bare soil conditions still persist. Wild plum and other deciduous species have re-sprouted.

In spring and early summer of 2015, the 2011 tree removal area was again subjected to a prescribed burn. This time, the area that did not carry fire was brush mowed to set back the plum and other brush.

## **Activities Completed Through This Project:**

This restoration site covers approximately 19 acres.

Native seed was mechanically harvested from Cottonwood River Scientific and Natural Area in 2013 and hand harvested at Eden North 19-1 Native Prairie Bank in 2014. This yielded around 35 pounds of native grass and wildflower seed. The seed mix was dominated by big bluestem, little bluestem, Indian grass, and side-oats grama.

This 35 pounds was seeded by hand on February 24<sup>th</sup>, 2015. Seed was applied into open areas and thinner plum thickets with good soil to seed contact. Areas with dense plum thickets and rock outcrops were excluded, creating a patchy seeding over a large restoration area.

This work was done by DNR staff with Conservation Corps Minnesota assisting with seed harvest.

**Map of Restoration project:** Attached below as Appendix B

**Ongoing Management Needs & Funding:**

Original seed collection included a diverse number of species, but the timing of harvest left many early season species out of the seed mix for this restoration. Hand and selective mechanical harvest of additional seed may be considered for this site if bare patches persist. Ongoing management will include prescribed fire, mowing, and brush management and targeted herbicide treatments as needed to control invasive and non-native species. This will be done with funding available through appropriations by the legislature, including future ENRTF and Outdoor Heritage Fund appropriations. Future use of CCM crews is proposed to aide in ongoing management activities, most notably prescribed fire implementation.

[Initial Evaluation](#)

**Dates:** June 2016

**Summary of Evaluation:** SNA staff has observed that some desirable native species are appearing, but as is typical with restorations of this kind, invasive species such as thistle, occur at the site. The patchy nature and potential for natural revegetation of this restoration does make it difficult to determine the true success of the seeding. Warm season perennial prairie grasses and wildflowers typically take more than a single growing season to get established. Invasive species control, both chemical and mechanical, along with the planned application of mowing and prescribed fire will enhance the early stages of this restoration and site conditions will continue to improve. Throughout the next several years, prescribed fire will be used to manage the growth of woody species including wild plum, to minimize the effect of shade of the seeded prairie species.

[Three Year Evaluation](#)

**Proposed Dates:** June/July 2019

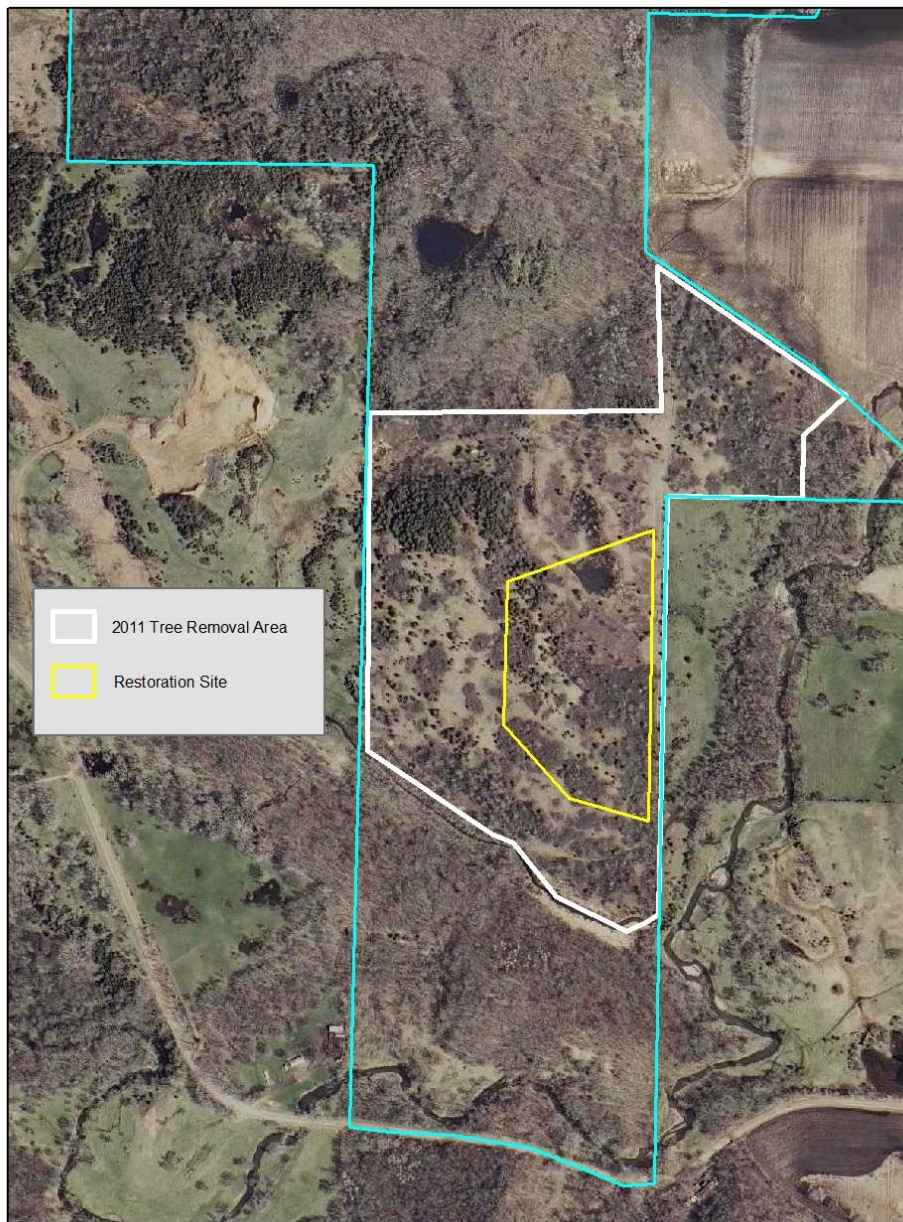
**Summary of Evaluation:**

## Appendix A. Partial list of species seeded

Big Bluestem	<i>Andropogon gerardii</i>
Indian Grass	<i>Sorghastrum nutans</i>
Little Bluestem	<i>Schizachyrium scoparium</i>
Side Oats grama	<i>Bouteloua curtipendula</i>
Prairie Dropseed	<i>Sporobolus heterolepis</i>
Carex	<i>Carex</i> sp.
Leadplant	<i>Amorpha canescens</i>
White Prairie Clover	<i>Dalea candida</i>
Purple Prairie Clover	<i>Dalea purpurea</i>
Prairie Cinquefoil	<i>Potentilla arguta</i>
Hoary Vervain	<i>Verbena stricta</i>
False Boneset	<i>Brickellia eupatorioides</i>
Narrow-leaf coneflower	<i>Echinacea angustifolia</i>
Wolfberry	<i>Symphoricarpos</i> sp.
Round Headed Bush clover	<i>Lespedeza capitata</i>
Prairie Onion	<i>Allium stellatum</i>
Stiff Goldenrod	<i>Solidago rigida</i>
Heath Aster	<i>Symphyotrichum ericoides</i>
Hairy Four-O'Clock	<i>Mirabilis albida</i>
White Sage	<i>Artemisia ludoviciana</i>
Green Milkweed	<i>Asclepias viridiflora</i>
Ground Plum	<i>Astragalus crassicaulus</i>
Wild Bergamot	<i>Monarda fistulosa</i>
Yellow Coneflower	<i>Ratibida pinnata</i>
Prairie Rose	<i>Rosa arkansana</i>



## Appendix B. Parcel Map: Cedar Mountain Scientific and Natural Area Showing restoration site



## Evaluation of ENRTF Restoration Project

**Report Date:** June 30, 2016

**Legal Citation:** M.L. 2013, Chp. 52, Sec. 2, Subd. 04b

**Project Title:** Scientific & Natural Area Restoration, Enhancement, and Citizen Engagement

**Project Manager:** Margaret (Peggy) Booth

**Parcel Name:** Rock Ridge Prairie Scientific and Natural Area

**Parcel Ownership:** DNR administered and owned Scientific and Natural Area

**Completed Restoration and Management Plans Consistent with ENRTF Requirements:** Rock Ridge Restoration Plan (2013) and Rock Ridge Prairie Management Brief (2004)

**Summary of Plan Outcomes:** Desired future condition: Southern Mesic Prairie (Ups23a) native plant community.

Reestablishment of this plant community will provide additional habitat for rare species which have been documented on the Rock Ridge SNA and in similar communities within Delton Township. The SNA contains populations of prairie bush clover (*Lespedeza leptostachya*), a federally threatened species. The SNA is part of the "Red Rock Ridge" prairie landscape; a series of prairies lying along a ridge of Sioux quartzite outcroppings and including the Jeffers Petroglyphs State Historic Site and TNC Red Rock Prairie Preserve. The prairie was recommended for protection on DNR's Biological Report No. 12 Prairie Bush Clover Inventory and Preserve Design. The row crop fields on the SNA are being restored in stages (including one reported in a ML11 evaluation), with approximately 10-15 acres still in row crop production after this seeding.

### Activities Completed Through This Project:

This 9.3 acre restoration site was in row crops for a number of consecutive years. Previously, the non-cropped portions of this SNA were used for pasture and hay production. The final crop in advance of native prairie reconstruction was corn, which was planted and harvested in 2014. Corn and soy bean crops were rotated to help control non-native and other weedy species from dominating the site before restoration seeding. The rotation also provided time to collect enough native grass and wildflower seed from nearby native prairie remnants. The seed was harvested in the fall of 2014 from remnant native prairie and restoration sites at Cottonwood River Scientific and Natural Area and Rock Ridge Scientific and Natural Area. Seed samples - for mechanically harvested seed - were tested in fall 2014. The seed harvested was dominated by big bluestem and Indian grass; 19 additional native taxonomic groups were noted in the seed test. At least seven additional native prairie species were captured by hand harvesting. See species list in Appendix A.

The corn residue was baled and removed after harvest to increase soil to seed contact. The restoration site was seeded using a broadcast seeder. On February 12, 2015, in excess of 551 pounds of bulk harvest seed was spread over snow and exposed soil under frozen ground conditions.



Mowing, prescribed fire, and spot herbicide treatments were selected as the main management tools during the plant establishment period. The use of mowing minimizes the competition from non-native species and allows desirable native species to establish.

This work was done by DNR staff. CCM assisted with seed collection. A nearby landowner did the site prep and mowing in exchange for crop from the remaining field.

**Map of Restoration project:** Attached below as Appendix B

**Ongoing Management Needs & Funding:**

Original seed collection harvest included a diverse number of species, but the harvest timing left many species out of the seed mix for this restoration. Hand and selective mechanical harvest of additional seed from within the unit, Cottonwood River Prairie and other nearby remnants, is planned for this site. Ongoing management will include interseeding with native species from local seed source; prescribed fire, mowing, and targeted herbicide treatments as needed to control invasive and non-native species. In addition, the adjoining 10 to 15 acre parcel needs to be restored. This will be done with funding available through appropriations by the legislature, including future ENRTF and Outdoor Heritage Fund appropriations. Future use of CCM crews is proposed to aide in ongoing management activities, including native seed collection, invasive species control, prescribed fire preparation and implementation.

[Initial Evaluation](#)

**Dates:** June 2016

**Summary of Evaluation:** SNA staff has observed that some desirable native species are appearing, but as is typical with restorations of this kind, invasive species such as thistle, dominate the site. Warm season perennial prairie grasses and wildflowers typically take more than a single growing season to get established. Invasive species control, both chemical and mechanical, along with the planned application of mowing and prescribed fire will enhance the early stages of this restoration and site conditions will continue to improve. Throughout the next several years, prescribed fire and additional seeding will be used to increase species diversity and to manage non-native species.

[Three Year Evaluation](#)

**Proposed Dates:** June/July 2019

**Summary of Evaluation:**

## Appendix A. Partial list of species seeded

Big Bluestem	<i>Andropogon gerardii</i>
Indian Grass	<i>Sorghastrum nutans</i>
Little Bluestem	<i>Schizachyrium scoparium</i>
Side Oats grama	<i>Bouteloua curtipendula</i>
Leadplant	<i>Amorpha canescens</i>
White Prairie Clover	<i>Dalea candida</i>
Purple Prairie Clover	<i>Dalea purpurea</i>
Prairie Cinquefoil	<i>Potentilla argute</i>
Prairie Rose	<i>Rosa arkansana</i>
Gray-headed Coneflower	<i>Ratibida pinnata</i>
Wild Bergamot	<i>Monarda fistulosa</i>
Gayfeather	<i>Liatris sp.</i>
Hoary Vervain	<i>Verbena stricta</i>
Thimbleweed	<i>Anemone cylindrica</i>
Aster Species	<i>Aster sp</i>
Dropseed	<i>Sporobolus sp.</i>
Prairie Dropseed	<i>Sporobolus heterolepis</i>
Canada Wildrye	<i>Elymus canadensis</i>
Switchgrass	<i>Panicum virgatum</i>
Goldenrod	<i>Solidago sp.</i>
False Boneset	<i>Brickellia eupatorioides</i>
Evening Primrose	<i>Oenothera sp.</i>
Wolfberry	<i>Symphoricarpos sp.</i>
Round Headed Bush clover	<i>Lespedeza capitata</i>
Stiff Goldenrod	<i>Solidago rigida</i>
Carex spp.	<i>Carex sp.</i>

## Appendix B. Parcel Map: Rock Ridge Scientific and Natural Area Showing restoration site

