M.L. 16 Project Abstract
For the Period Ending June 30, 2019

PROJECT TITLE: Scientific and Natural Area Restoration
PROJECT MANAGER: Ann Pierce
AFFILIATION: Minnesota Department of Natural Resources, Division of Ecological & Water Resources
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WEBSITE: mndnr.gov/snas
FUNDING SOURCE: Environment and Natural Resources Trust Fund
LEGAL CITATION: M.L. 2016, Chp. 186, Sec. 2, Subd. 09a

APPROPRIATION AMOUNT: $1,386,000
AMOUNT SPENT: $1,061,565
AMOUNT REMAINING: $324,435

Sound bite of Project Outcomes and Results

Scientific and Natural Areas (SNAs) are established to protect and perpetuate natural features which possess exceptional scientific/educational value. Through this appropriation, habitat restoration (50 acres) and enhancement (1,522 acres) took place across the state to sustain SNA's unique plant communities and the endangered, threatened, and rare species housed within them.

Overall Project Outcome and Results

Through this appropriation, habitat restoration and enhancement activities took place across the state on Scientific and Natural Areas (SNAs) to sustain the unique plant communities and the endangered, threatened, and rare species housed within these SNAs. Activities included 50.2 acres of habitat restoration (see restoration evaluations included with final report), 539 acres of invasive species control, 460 acres of woody control, 523 acres of prescribed burning, site development work at 22 SNAs, development of 7 interpretive signs, the completion of 12 Adaptive management Plans, ecological monitoring at 54 SNAs and partnership project activities at 6 SNAs. Partnership Projects coordinated through this appropriation led to multiple invasive control, woody control, prescribed burning and prairie restoration activities being completed.

Knowledge gained through ecological monitoring efforts will enable managers to improve management of SNA's unique plant communities and the Species in Greatest Conservation Need, state special concern and state/federally threatened and endangered species that call these habitats home. As best management practices are evaluated and improved through these efforts, SNA will be able to disseminate this knowledge to other landowners and land managers.

Project Results Use and Dissemination

Seven new interpretive signs were developed and installed at SNAs to communicate the significance of protecting these unique habitats and the role that restoration and enhancement play in sustaining or improving habitat quality. Several management activities completed through this appropriation have been highlighted on the SNA Facebook page and in the SNA program e-newsletter.

Environment and Natural Resources Trust Fund (ENRTF)
M.L. 2016 Work Plan FINAL REPORT

Date of Report: August 15, 2019

Final Report

Date of Work Plan Approval: June 7, 2016

Project Completion Date: June 30, 2019

PROJECT TITLE: Scientific and Natural Area Restoration

Project Manager: Ann Pierce

Organization: Minnesota Department of Natural Resources, Division of Ecological & Water Resources

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Location: statewide

Total ENRTF Project Budget:		
	ENRTF Appropriation:	**$1,386,000**
	Amount Spent:	**$1,061,565**
	Balance:	**$324,435**

Legal Citation: M.L. 2016, Chp. 186, Sec. 2, Subd. 09a

Appropriation Language:

$1,386,000 the second year is from the trust fund to the commissioner of natural resources to restore and improve approximately 750 acres of scientific and natural areas. A list of proposed restorations must be provided as part of the required work plan. This appropriation is available until June 30, 2019, by which time the project must be completed and final products delivered.

I. PROJECT TITLE: Scientific and Natural Area Restoration

II. PROJECT STATEMENT:
Minnesota's Scientific and Natural Areas (SNAs) are established to protect and perpetuate in an undisturbed natural state those natural features which possess exceptional scientific or educational value (MS 86A.05, Subd. 5). This requires ongoing restoration, including invasive species control, prescribed burning, and other improvements, in order to sustain endangered, threatened, and other rare species and the plant communities that support them. Through this appropriation, native habitat restoration, including habitat-focused site improvement activities, will be implemented on about 750 acres of SNAs threatened by human impacts, invasive species, and lack of natural disturbance regimes.

III. OVERALL PROJECT STATUS UPDATES:

Project Status as of December 12, 2016: One herbaceous invasive species treatment project has been completed on 6.9 acres at 1 SNA. Other restoration work has been initiated.

Project Status as of April 6, 2017: Invasives species treatment has been done on 86 acres at 4 SNAs, 1.2 miles of burn breaks were prepared at 1 SNA, and signs were installed at 3 SNAs.

Project Status as of <u>September 6</u>, 2017 <u>(cumulative results to date – changes since April underlined)</u> Invasives species treatment has been done on <u>98</u> acres at <u>8</u> SNAs; 1.2 miles of burn breaks were prepared at 1 SNA; <u>prescribed burns were completed on 16 acres at 1 SNA;</u> and <u>site development work was done at 10 SNAs.</u>

Project Status as of February 13, 2018: Ann Pierce is temporally acting as Project Manager until the SNA Unit Supervisor position (previously held by Peggy Booth) is filled. A formal amendment request will be completed once the position is filled. Cumulative results to date: Invasive species treatment completed on 99 acres at 9 SNAs, 6.9 miles of burn breaks were prepared at 8 SNA, prescribed burns were completed on 16 acres at 1 SNA, site development work was done at 12 SNAs, and 8 management plans have been contracted out with another 4 planned to be completed by staff.

Amendment Request (October 25, 2018): Request an amendment to add two additional restoration projects to the parcel list (Hemlock Ravine SNA and Mille Lacs Moraine forest restorations). Additionally request to move $65,000 from salary to contracts to allow for additional contracting of woody removal projects (initially planned to be completed by SNA staff). Amendment approved by LCCMR 11/09/2018.

Project Status as of October 25, 2018: Ann Pierce is temporally acting as Project Manager until the SNA Unit Supervisor position (previously held by Peggy Booth) is filled. A formal amendment request will be completed once the position is filled. Cumulative results to date: Invasive species treatment completed on 377 acres at 48 SNAs, 6.9 miles of burn breaks were prepared at 8 SNA, prescribed burns were completed on 222 acres at 10 SNA, site development work was done at 16 SNAs, and 6 management plans have been completed with another 6 initiated. Ecological monitoring has occurred at more than 8 SNAs with additional sites and details coming in April once field work data is summarized.

Amendment Request (February 6, 2019): Request to move $80,000 from salary to contracts to allow for additional contracting of woody removal projects. Additionally request to move 30 acres of restoration and 50 acres of prescribed burning to woody removal and invasive species treatment. Staff are still hoping to meet original prescribed burn goals but spring always brings uncertain weather conditions therefore we would like to contract out additional woody removal projects as a back-up. As for restoration, seed collection efforts did not harvest as diverse of a seed mix as desired so more collection needs to occur, therefore will likely move forward with other appropriations to insure adequate time for completion is available. Also request to lower partnership projects from 9 to 5 in exchange for completing an additional 60 acres of woody removal. Many partner

projects have been taking place but most recently the work has been more outreach and acquisition related rather than restoration/enhancement based therefore we request to hire a contractor to complete the work instead. Amendment Approved by LCCMR 2/13/2019.

Project Status as of February 6, 2019: Ann Pierce is temporally acting as Project Manager until the SNA Unit Supervisor position (previously held by Peggy Booth) is filled. A formal amendment request will be completed once the position is filled. Cumulative results to date: Invasive species treatment completed on 676 acres at 44 SNAs, 13.3 miles of burn breaks were prepared at 13 SNA, prescribed burns were completed on 222 acres at 10 SNA, site development work was done at 16 SNAs, and 6 management plans have been completed with another 6 close to completion. Ecological monitoring has occurred at 28 SNAs with additional sites.

Overall Project Outcomes and Results:

Through this appropriation, habitat restoration and enhancement activities took place across the state on Scientific and Natural Areas (SNAs) to sustain the unique plant communities and the endangered, threatened, and rare species housed within these SNAs. Activities included 50.2 acres of habitat restoration (see restoration evaluations included with final report), 539 acres of invasive species control, 460 acres of woody control, 523 acres of prescribed burning, site development work at 22 SNAs, development of 7 interpretive signs, the completion of 12 Adaptive management Plans, ecological monitoring at 54 SNAs and partnership project activities at 6 SNAs. Partnership Projects coordinated through this appropriation led to multiple invasive control, woody control, prescribed burning and prairie restoration activities being completed.

Knowledge gained through ecological monitoring efforts will enable managers to improve management of SNA's unique plant communities and the Species in Greatest Conservation Need, state special concern and state/federally threatened and endangered species that call these habitats home. As best management practices are evaluated and improved through these efforts, SNA will be able to disseminate this knowledge to other landowners and land managers.

IV. PROJECT ACTIVITIES AND OUTCOMES:

ACTIVITY 1: Native Habitat Restoration & Improvements

Description:
Native habitat restoration, including habitat-focused site improvement activities, will be completed on about 750 acres at ~40 state designated SNAs. For purposes of this appropriation, restoration includes the full suite of ecological management tools needed to restore sites and sustain or improve their ecology. The tools include baseline inventory and monitoring of ecological conditions to guide management practices, adaptive management plans, plant community reconstruction and rehabilitation, woody encroachment and invasive species control, prescribed burning and other prescribed site disturbance, and additional post-management monitoring in order to refine further management practices.

Site development improvements will be completed as part of restoration projects (such as protective fencing) and as needed in order for sites newly acquired with ENRTF to meet minimal standards. Interpretive signs-kiosks will be developed and installed at ~8 SNAs acquired or restored with this or recent ENRTF appropriations. These interpretive signs communicate the significance of the ENRTF-supported acquisition and the role of ENRTF-supported restoration in sustaining or improving habitat quality. SNA staff will provide ecological and technical guidance and on-site verification for ~9 restoration-related projects implemented on SNAs by partner organizations.

Adaptive Management Plans will be completed for ~12 SNAs (including sites acquired through these funds as timing permits); these plans will serve as ecological restoration and management plans as described below.

Restoration projects will be based upon ecological restoration and management plans and/or project plans with goals for reconstructing plant communities that are native to the site that are based upon soils, topography, geology, and other factors necessary to sustain the plant community. Each plan includes an implementation timetable which summarizes ongoing management needs. Long-term management costs (e.g. invasive species treatments, prescribed fire, and monitoring/evaluation) will be covered by a combination funding sources, including, but not limited to, ENRTF, Outdoor Heritage Fund (OHF), federal grants, and other funds as appropriated. Restoration projects will be evaluated in terms of project goals and to ascertain how well the native plants have been established and non-natives controlled.

Ecological features and restoration/management practices at ~22 SNAs will be monitored to establish baseline conditions and/or identify adaptive management process improvements needed to achieve better habitat for rare species and Species of Greatest Conservation Need (SGCN). The Adaptive Management Spatial Database (AMSD) was initially developed with ENRTF support in order to accurately map and document implementation of restoration and enhancement projects done at SNAs and linking these accomplishments to specific project funding. Through this appropriation, improvements will be made to the database to add or link restoration/management plans, ecological monitoring data, and other Natural Heritage Information System (e.g. MBS data) to the database. Through this, restoration activities will be more accurately and fully informed and improved by the best available science.

Practices to be done under Activity 2 of this appropriation will be carried out by DNR staff-SNA crews, Conservation Corps Minnesota (CCM), Sentence to Service (STS), volunteers, and/or contractors. Practices may include seed collection, site preparation, planting and establishment period care; invasive species control, woody encroachment removal; prescribed burns (or alternative prescribed disturbance for ecological management purposes, such prescribed haying, mowing, browsing, or grazing, necessary for sites or conditions where use of fire is limited); site development for recent ENRTF acquisitions and/or restoration-related work: site clean-up, sign and interpretive kiosks installation, fencing (removal or installation), unpaved parking areas and visitor access-safety improvements (and associated measures to protect native habitat); management plan preparation; baseline ecological feature assessments and ecological monitoring; and technical/ecological oversight and field verification of restoration-related projects implemented by partners.

All restoration will use seeds/plants of a local ecotype, collected from onsite or within 25 miles. Restoration and improvements of degraded and rare land features (particularly native prairie, savanna, and forest) help implement the SWAP and achieve Habitat Recommendation 5 of the SCPP. This activity and its funding will include those restoration and improvements of newly acquired sites when that work is ecologically advisable and feasible within the appropriation period. The attached ML 2016 Parcel List and ML16 SNA Restoration Projects map set identify priority sites for SNA plant community reconstruction and rehabilitation for this appropriation. Reconstruction is when a plant community which would be native to the site is planted on bare ground (e.g. former agricultural field or removed conifer plantation). Rehabilitation is the interseeding of a degraded plant community; this may follow a woody removal or invasive species control project.

Summary Budget Information for Activity 1:

ENRTF Budget: $ 1,386,000
Amount Spent: $ 1,061,565
Balance: $ 324,435

Outcome	Completion Date
1a. ~4 acres of reconstruction or rehabilitation of forest & prairie sites	6/30/19
1b. ~400 acres of woody removal & invasive species treatment	6/30/19
1c. ~430 acres of prescribed burns or other prescribed disturbance	6/30/19
1d. acquisition & restoration-related site development work on ~15 sites & ~8 SNA interpretive kiosks installed	6/30/19
1e. ecological/technical guidance for ~5 partnership restoration-related projects	6/30/18

1f. restoration/management plans completed for ~12 SNAs	6/30/18
1g. ecological/adaptive management monitoring on ~22 SNA sites	6/30/19

Note: total budget for this Activity includes $73,657 for direct & necessary services which are prorated across all costs except budgets for CCM contracts and MNIT service level agreement (SLAs); no direct & necessary charges are budgeted for the estimated $88K in CCM contracts and $25K in MNIT SLAs; actual charges will be based on actual expenditures.

Activity Status as of December 12, 2016: One herbaceous invasive species treatment project has been completed on 6.9 acres at 1 SNA. Other work is in progress.

Activity Status as of April 6, 2017 – cumulative results to date (since July 2016):
2a. Restoration: Seed collection has been completed for the Cannon River Turtle Preserve SNA. **2b. Woody removal & Invasive Species Treatment**: Herbaceous invasives treatment has been done on 6.9 acres at 1 SNA and woody removal has been completed on 78.8 acres at 3 SNAs. **2c. Prescribed Burning/Prescribed Disturbance**: About 1.2 miles of burn breaks were prepared at 1 SNA. **2d. Development**: activities completed included: installation or repair of signs (boundary, entry, or rules) at 3 SNAs. **2e. Partner Project Coordination**: Being done with the ML15 appropriation to date. **2f. Management Planning**: An RFP for contractors to prepare about 8 plans will be issued in April 2017. **2g. Ecological Monitoring & AMSD:** Being done with the ML15 appropriation to date.

Activity Status as of September 6, 2017– cumulative results since July 2016 with changes since April underlined:
2a. Restoration: Initial seed collection was done for the Cannon River Turtle Preserve SNA.

2b. Woody removal & Invasive Species Treatment: Herbaceous invasives treatment has been done on 18.9 acres at 5 SNAs and woody removal has been completed on 78.8 acres at 3 SNAs.

2c. Prescribed Burning/Prescribed Disturbance: About 1.2 miles of burn breaks were prepared at 1 SNA. Prescribed burning has been completed on 15.6 acres at 1 SNA.

2d. Development: activities completed at 10 SNAs including: installation or repair of signs (boundary, entry, or rules) and parking lot improvements including the newly acquired Lawrence Creek SNA, River Warren Outcrops SNA, Cedar Rock SNA, and Antelope Valley SNA.

2e. Partner Project Coordination: Being done with the ML15 appropriation to date.

2f. Management Planning: Staff have identified which SNA management plans will be done by staff and which are being done through contracts that began in July 2017.

2g. Ecological Monitoring & AMSD: Being done with the ML15 appropriation to date.

Activity Status as of February 13, 2018: – cumulative results: 2a. Restoration: Initial seed collection was done for the Cannon River Turtle Preserve SNA. 2b. Woody removal & Invasive Species Treatment: Herbaceous invasive treatment has been done on 19 acres at 5 SNAs and woody removal has been completed on 80 acres at 4 SNAs. 2c. Prescribed Burning/Prescribed Disturbance: About 8.6 miles of burn breaks were prepared at 9 SNAs. Prescribed burning has been completed on 15.6 acres at 1 SNA. 2d. Development: activities completed at 12 SNAs including: installation or repair of signs (boundary, entry, or rules) and parking lot improvements. 2e. Partner Project Coordination: Being done with the ML15 appropriation to date. 2f. Management Planning: Eight SNA management plans have been contracted out with an anticipated completion date of June 30, 2018. Another 4 SNA management plans are identified and will be written by staff. 2g. Ecological Monitoring & AMSD: Finishing up ML15 appropriation monitoring work this spring. Requests for proposals are currently being put together for contracted work to be completed during the 2018 growing season tied to this appropriation.

Activity Status as of October 25, 2018: cumulative results: 2a. Restoration: Initial seed collection was done for the Cannon River Turtle Preserve SNA. 2b. Woody removal & Invasive Species Treatment: Herbaceous invasive treatment has been done on 127 acres at 30 SNAs and woody removal has been completed on 250 acres at 18 SNAs. 2c. Prescribed Burning/Prescribed Disturbance: About 6.9 miles of burn breaks were prepared at 8 SNAs. Prescribed burning has been completed on 222 acres at 10 SNA. 2d. Development: activities completed at 16 SNAs including: installation or repair of signs (boundary, entry, or rules), parking lot improvements and site cleanup. 2e. Partner Project Coordination: Partnership work continues with the Friends of the Mississippi River at Hastings Sand Coulee SNA and Pine Bend Bluff SNA and with Great River Greening at Wolsfeld Woods SNA. 2f. Management Planning: Four SNA management plans have been completed by contractors with another 4 contracted plans drafted and awaiting final review and approval by SNA staff. 2 SNA management plans have been completed by SNA staff with 2 more initiated. 2g. Ecological Monitoring & AMSD: Monitoring projects in cooperation with DNR Nongame Wildlife, Minnesota Biological Survey, and/or EWR Conservation Management and Rare Resources Unit have been continued/expanded from past appropriations as follows:

- The federally-listed threatened prairie bush clover (at the Prairie Bush Clover SNA) was monitored in FY19 in order to help inform prescribed fire and other management activities.
- Prairie status and trends monitoring was completed at 7 SNAs during FY19. This is a continuation of the ongoing prairie monitoring work initiated in the ML2008 Accelerated Prairie ENRTF appropriation and continued with subsequent SNA ENRTF appropriations and through federal State Wildlife Grant funding.
- Older releve plots on SNAs in east-central and southeast Minnesota were selected for resampling to measure changes in native forest and prairie vegetation over the past 20 to 40 years. A contractor completed releve resampling on 12 SNAs (1 releve per SNA) utilizing the ML15 appropriation and additional SNAs were targeted for this appropriation. A summary of those sites will be put together once field work is completed for the season and reported in April.

Activity Status as of February 6, 2019: cumulative results: 2a. Restoration: Initial seed collection was done for the Cannon River Turtle Preserve SNA. 2b. Woody removal & Invasive Species Treatment: Herbaceous invasive treatment has been done on 224 acres at 35 SNAs and woody removal has been completed on 452 acres at 28 SNAs. 2c. Prescribed Burning/Prescribed Disturbance: About 13.3 miles of burn breaks were prepared at 13 SNAs. Prescribed burning has been completed on 222 acres at 10 SNA. 2d. Development: activities completed at 16 SNAs including: installation or repair of signs (boundary, entry, or rules), parking lot improvements and site cleanup. 2e. Partner Project Coordination: Partnership work continues with the Friends of the Mississippi River at Hastings Sand Coulee SNA and Pine Bend Bluff SNA, with Great River Greening at Wolsfeld Woods SNA, with the City of Duluth and Park Point Community Club at Minnesota Point and with the Prairie Plan Seed Coalition at Sandpiper Prairie SNA. 2f. Management Planning: Four SNA management plans have been completed by contractors with another 4 contracted plans almost complete. 2 SNA management plans have been completed by SNA staff with 2 more almost complete. 2g. Ecological Monitoring & AMSD: Monitoring projects in cooperation with DNR Nongame Wildlife, Minnesota Biological Survey, and/or EWR Conservation Management and Rare Resources Unit have been continued/expanded from past appropriations as follows:

- The federally-listed threatened prairie bush clover (at the Prairie Bush Clover SNA) was monitored in FY19 in order to help inform prescribed fire and other management activities.
- Prairie status and trends monitoring was completed at 7 SNAs during FY19. This is a continuation of the ongoing prairie monitoring work initiated in the ML2008 Accelerated Prairie ENRTF appropriation and continued with subsequent SNA ENRTF appropriations and through federal State Wildlife Grant funding.
- Older relevé plots on 19 SNAs in east-central and southeast Minnesota were resampled to measure changes in native forest and prairie vegetation over the past 20 to 40 years. These SNAs were: Boot Lake, Helen Allison, Partch Woods, Clear Lake, Kellogg Waver Dunes, King's and Queen's Bluffs, Rushford San Barrens, Wykoff Balsam Fir, Pin Oak Prairie, Oronoco Prairie, Kasota Prairie, Uncas

Dunes, Lost Valley Prairie , Pine Bend Bluffs, Quarry Park, Falls Creek, Iron Horse, St. Croix Savannah and Rice Lake Savanna.

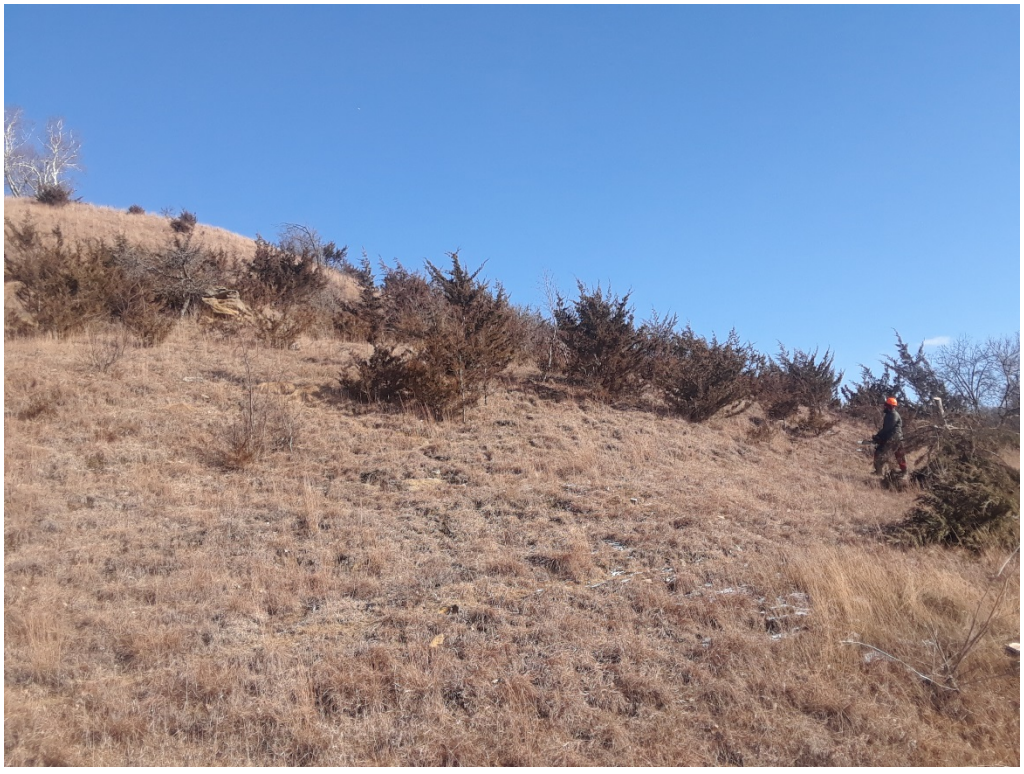
- Monitoring impacts of woody and invasive grass invasion on tubercled rein-orchid at Quarry Park SNA. Additionally, monitoring orchid response to woody control and prescribed burns utilized to minimize invasion impacts to the species.

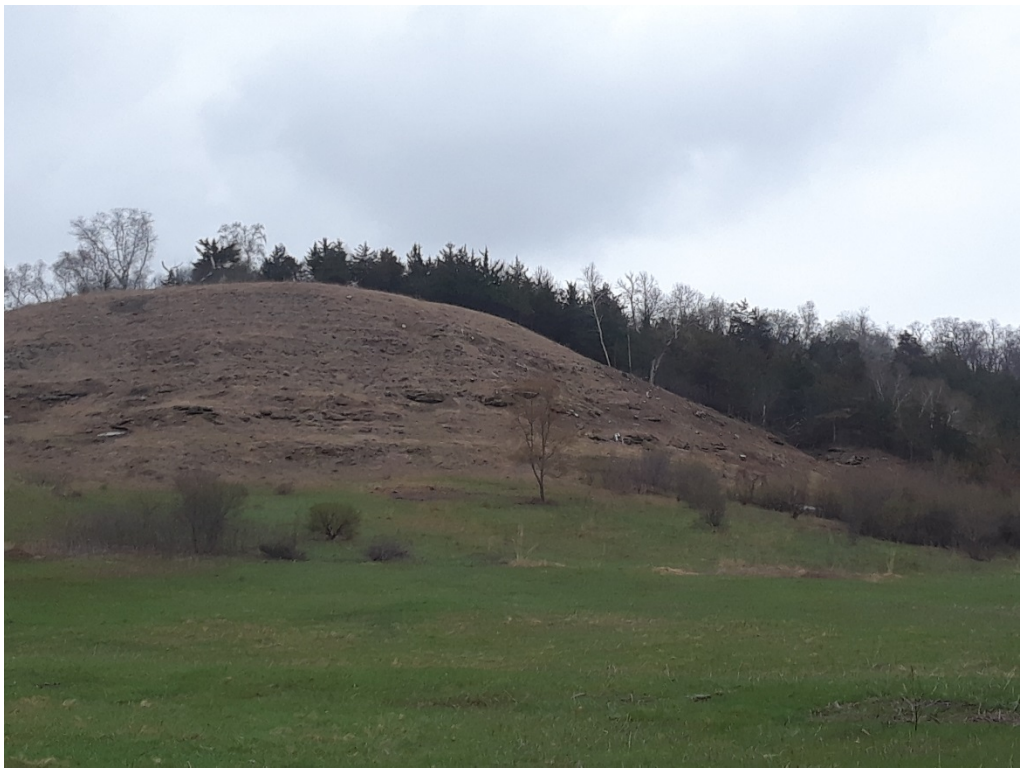
Final Report Summary:

2a. Restoration: The following restoration projects took place through this appropriation. Please see restoration evaluations for more details.

- A 0.5 acre Southern Dry Hill Prairie buffer was restored at Mound Springs SNA.
- A 7.5 acre Southern Dry Hill Prairie was restored at Mound Springs SNA.
- A 40.2 acre Northern Wet Prairie was restored at Sandpiper Prairie SNA. Though the restoration was completed with this appropriation, some initial site preparation was completed through ML14 ENRTF.
- Restored 2 acres of slide areas eroded by rain and flooding at Hemlock Ravine SNA.
- Initial seed collection was done for the Cannon River Turtle Preserve SNA however the restoration was completed utilizing alternative funding.

2b. Woody removal & Invasive Species Treatment: Herbaceous invasive treatment has been done on 539 acres at 51 SNAs and woody removal has been completed on 460 acres at 32 SNAs. Below are before and after photos of the woody removal work completed at Spring Creek SNA.





2c. Prescribed Burning/Prescribed Disturbance: About 19.8 miles of burn breaks were prepared at 18 SNAs. Prescribed burning has been completed on 523 acres at 18 SNA.

2d. Development: Development activities completed at 22 SNAs including: installation or repair of signs (boundary, entry, or rules), parking lot improvements, fence, and site cleanup. Seven of the 8 interpretive signs were completed, one came from the manufacturer with printing errors therefore it was returned and not paid for. ML17 ENRTF will be used to purchase this remaining sign once corrected and reshipped.

2e. Partner Project Coordination: Partnership projects completed through this project are detailed below.

- Friends of the Mississippi River helped execute invasive weed control, prescribed burning, prairie restoration and seed collection at Hastings Sand Coulee SNA.
- Friends of the Mississippi River helped execute prescribed burning, invasive control and woody removal activities at Pine Bend Bluffs.
- Friends of the Mississippi River helped execute woody removal activities at Grey Cloud Dunes.
- Great River Greening helped conduct invasive control and a trail rehabilitation project at Wolsfeld Woods SNA.
- City of Duluth and Park Point Community Club helped execute the reroute and restoration completed at Minnesota Point SNA.
- The Minnesota Prairie Plan Local Technical Team led Seed Coalition helped to harvest and retain enough local seed for the Sandpiper Prairie SNA restoration.

2f. Management Planning: Eight SNA Adaptive Management Plans were completed by contractors along with 4 additional SNA Adaptive Management Plans completed by SNA staff.

2g. Ecological Monitoring & AMSD: The Adaptive Management Spatial Database (AMSD), initially developed with ENRTF support in order to accurately map and document implementation of restoration and enhancement

projects done at SNAs was improved to better interface with ArcGIS and other information systems. This is the first step in improving the database to better manage data and makes the data more readily available to share with partners and better link to monitoring outcomes.

Monitoring projects in cooperation with DNR Nongame Wildlife, Minnesota Biological Survey, and/or EWR Conservation Management and Rare Resources Unit have been continued/expanded from past appropriations as follows:

- The federally-listed threatened prairie bush clover (at the Prairie Bush Clover SNA) was monitored in FY19 in order to help inform prescribed fire and other management activities.
- Prairie status and trends monitoring was completed at 7 SNAs during FY19. This is a continuation of the ongoing prairie monitoring work initiated in the ML2008 Accelerated Prairie ENRTF appropriation and continued with subsequent SNA ENRTF appropriations and through federal State Wildlife Grant funding.
- Older relevé plots on 19 SNAs in east-central and southeast Minnesota were resampled throughout the 2018 growing season to measure changes in native forest and prairie vegetation over the past 20 to 40 years. These SNAs were: Boot Lake, Helen Allison, Partch Woods, Clear Lake, Kellogg Waver Dunes, King's and Queen's Bluffs, Rushford San Barrens, Wykoff Balsam Fir, Pin Oak Prairie, Oronoco Prairie, Kasota Prairie, Uncas Dunes, Lost Valley Prairie , Pine Bend Bluffs, Quarry Park, Falls Creek, Iron Horse, St. Croix Savannah and Rice Lake Savanna. In June 2019, older relevé plots in three SNAs on the North Shore of Lake Superior were resampled to measure changes in native forest, lakeshore, and rock outcrop vegetation over the past 20 to 40 years. These SNAs were: Myhr Creek Ridge, Sugarloaf Point, and Moose Mountain.
- Monitoring impacts of woody and invasive grass invasion on tubercled rein-orchid at Quarry Park SNA. Additionally, monitoring orchid response to woody control and prescribed burns utilized to minimize invasion impacts to the species.
- In June, 2019 one of three rounds of butterfly distance sampling took place at Prairie Coteau SNA, Mound Prairie SNA, and Kellogg -Weaver Dunes SNA, to begin monitoring butterflies for adaptive management.
- In June, 2019 bee surveys were conducted at McGregor Marsh SNA, Mille Lacs Moraine SNA, and Kettle River SNA. Hand netting during meandering walks through each of these sites was done. Over 25 bees were captured and frozen for later identification. This information will be utilized overtime to determine best management practices on these SNAs and other managed natural areas to avoid unintended implications to bee species through enhancement activities.
- Rare Turtle and Snake Surveys were conducted at Cannon River Turtle SNA. These survey's targeted state threatened Wood and Blanding's Turtles along the river corridor and at potential nesting sites. In addition, trail cameras were deployed to document turtle activity at potential nest sites, and snakes at potential den sites within or adjacent to the SNA. Timber Rattlesnake (state threatened), North American Racer (state special concern) and Gopher/Bullsnakes (state special concerns) are the target snake species.
- Grassland snake surveys were performed at 11 SNAs in western Minnesota. This is a continuation of the work intiated through ML15 ENRTF with the addition of 3 SNAs. Roughly 11 species of amphibians and reptiles were documented.
- Full-spectrum acoustic detectors (Wildlife Acoustics SM3 and SM4BAT) were deployed on 5 SNAs in northeastern Minnesota to document bat species present and relative foraging activity. SNAs surveyed were Big Island, Burntside Islands, Lost Lake Peatland, Purvis Lake-Ober Foundation and

Sand Lake Peatland. Detectors were operated for two weeks. Call files/site recorded during this period ranged from 200 to over 5,500.

V. DISSEMINATION:
Description:
Dissemination will primarily be achieved through the SNA webpage on the DNR website: mndnr.gov/snas, through the SNA Facebook page, and through *Nature Notes* – the SNA Program e-newsletter distributed through GovDelivery.com to over 3900 subscribers and possibly through Tweets on the DNR Twitter site. Announcements of some restoration-related activities will be posted on the SNA Facebook page.

Status as of December 12, 2016: none to date

Status as of April 6, 2017: none to date

Status as of September 6, 2017: none to date

Status as of February 13, 2018: none to date

Status as of October 25, 2018: Several management activities completed through this appropriation have been highlighted on the SNA Facebook page and in the SNA program e-newsletter.

Status as of February 6, 2019: Several management activities completed through this appropriation have been highlighted on the SNA Facebook page and in the SNA program e-newsletter.

Final Report Summary: Seven new interpretive signs were completed and placed at SNAs to communicate the significance of protecting these unique habitats and the role that restoration and enhancement play in sustaining or improving habitat quality. Several management activities completed through this appropriation have been highlighted on the SNA Facebook page and in the SNA program e-newsletter.

VI. PROJECT BUDGET SUMMARY:
A. ENRTF Budget Overview:

Budget Category	$ Amount	Overview Explanation
Personnel:	$604,600 **Final Amount Spent: $575,728**	Coordinators (0.5 FTE for 2 yrs) **Final Report:** Coordinators (0.1 FTE for 3 yrs) Spec's, tech's & naturalists (3.5FTE for 2 yrs); **Final Report:** specialists, technicians & naturalists (2.1 FTE for 3 yrs) Laborers & seasonal field crews (2.4 FTE for 2 yrs) **Final Report:** laborers & seasonal field crews (0.6 FTE for 3 yrs)
Professional/Technical/Service Contracts:	$426,100 **Final Amount Spent: $230,043**	Contractors will be selected following state procurement & bidding processes: Professional/Technical Contracts – interpretive kiosks research & design; mgmt. plans; adaptive mgmt. monitoring; Service Contracts (including Conservation Corps Minnesota) - woody encroachment removal & invasives control; prescribed burning, haying,

		mowing, browsing, & grazing; site development (fences, signs, etc)
Contract	S 25,000 **Final Amount Spent: $21,505**	IT Services (Mn.IT service agreements) Adaptive Management Spatial Database upgrades to integrate restoration planning/ecological data, implementation & monitoring
Equipment/Tools/Supplies:	$ 89,693 **Final Amount Spent: $39,218**	parts, tools, repair costs & supplies for restoration, invasives control, prescribed burning, haying, mowing or grazing, management plans, & monitoring; interpretive displays, signs & posts, fencing, & other site development tools & supplies
Printing:	$ 5,000 **Final Amount Spent: $3,150**	printing of interpretive sign panels
Travel Expenses in MN:	$ 161,950 **Final Amount Spent: $126,847**	Fleet charges for trucks, cars, & equipment (e.g. mowers, seeders), mileage, lodging & meals as per state contracts. The fleet charges are use charges (by mile traveled or monthly charge which we pro-rate) for the specific equipment utilized for this project.
Other:	$ 73,657 **Final Amount Spent: $65,074**	Direct & Necessary Services for the appropriation
TOTAL ENRTF BUDGET:	**$ 1,386,000** **Final Amount Spent: $1,061,565**	

Explanation of Use of Classified Staff: Consistent with approved work plans for previous ENRTF appropriations for the SNA Program, this funding will be used to pay project-associated costs for classified and unclassified staff paid mostly with special project funds. These positions would not exist, but for special project funding received through the ENRTF and other funds. Each year these positions are assigned work based on the particular combination of soft funding available to address priority SNA Program activities.

Direct and Necessary expenses include both Department Support Services (Human Resources, IT Support, Safety, Financial Support, Communications Support, Planning Support, and Procurement Support) and Division Support Services. Department Support Services are described in the agency Service Level Agreement, and billed internally to divisions based on rates that have been developed for each area of service. These services are directly related to and necessary for the appropriation. Department leadership services (Commissioner's Office and Regional Directors) are not assessed. Division Support Services include costs associated with Division business offices and clerical support. Those elements of individual projects that put little or no demand on support services such as large single-source contracts, land acquisitions, and funds that are passed-thru to other entities are not assessed Direct and Necessary costs for those activities. For this work plan, CCM contracts (~$88,000), and MnIT service level agreement (~$25,000) have not been assessed Direct and Necessary costs. In addition to itemized costs captured in our proposal budget, direct and necessary costs cover HR Support ($18,624), Safety Support ($4,390), Financial Support ($16,791), Communication Support ($6,180), IT Support ($22,352), Planning Support ($4,145), and Procurement Support ($1,175) that are necessary to accomplishing funded programs/projects.

Explanation of Capital Expenditures Greater Than $5,000: NA

Number of Full-time Equivalents (FTE) Directly Funded with this ENRTF Appropriation: 6.4 FTE each for two years spread over 25-35 positions – for a total of 12.8 FTEs, **Final Report:** 2.8 FTE each for three years spread over 25-35 positions – for a total of 8.4 FTEs,

Number of Full-time Equivalents (FTE) Estimated to Be Funded through Contracts with this ENRTF Appropriation: up to 0.4 FTE for 1 year for professional technical contract; & up to 2 FTE for 1 year for CCM & fieldwork contractors – for a total of 2.4 FTEs

B. Other Funds:

Source of Funds	$ Amount Proposed	$ Amount Spent	Use of Other Funds
Non-state	**$0**	**$0**	If any other funds are used for projects funded with this appropriation, accomplishments will be pro-rated by the actual expenditures per funding source.
State**	**$0****	**$0****	If any other funds are used for projects funded with this appropriation, accomplishments will be pro-rated by the actual expenditures per funding source. In-kind contributions by the project manager to administer this project will not be tracked.
TOTAL OTHER FUNDS:	**$50,000**	**$0**	

** As indicated below, Outdoor Heritage Fund appropriations for prairie restoration and enhancement occur concurrently with this ENRTF appropriation. These OHF funds are used for similar but separate projects as the ENRTF funding. Because of the multiple, overlapping appropriations, it would not be accurate to list those as match here. Also, the SNA program typically annually receives an internal general fund grant for about $30,000 for similar but separate invasive species projects.

VII. PROJECT STRATEGY:

A. Project Partners:

This proposal includes the DNR's work and funding to be used by the SNA Program towards restoration-related partnership project work on SNAs. Partners include entities, such as The Nature Conservancy, Friends of the Mississippi River, Great River Greening, Sugarloaf Northshore Stewardship Association, local units of governments, and other non-profits.

B. Project Impact and Long-term Strategy:

The *SNA Strategic Land Protection Plan*'s primary goal is "the state's natural heritage is not lost from any ecological region of Minnesota" with 6 objectives: 1) 5 *occurrences of each existing native plant community are within designated SNAs within each ecological subsection; 2) 3 occurrences of each existing species of plant and animal are within designated SNAs within each ecological subsection; 3) 1 of each type of geological feature in the state is within a designated SNA; 4) 10% of the state's high priority conservation areas are protected through SNAs; other landowners and managers conserve the natural heritage within high priority conservation areas; 5) SNAs contribute* ecological values in key watersheds; and 6) t*he SNAs' natural features and public benefit are sustained over time*. Ongoing restoration, including invasive species control, prescribed burning, and other improvements, are necessary to sustain rare species and the plant communities that support them. This restoration work is based upon adaptive management plans which are refined over time through ecological

monitoring and tracking through the Adaptive Management Spatial Database. The SNA Program is largely dependent on grant funds (predominantly ENRTF and some OHF) for SNA acquisition, restoration, and outreach. Thus, the DNR could utilize support from the Environment and Natural Resources Trust fund of $10M to $20M per biennium over the next 20 years.

C. Funding History:

This includes funding for acquisition and public engagement as well as restoration.

Funding Source and Use of Funds	Funding Timeframe	$ Amount
ENRTF ML11, 1SS, Ch2, Art3, Sec2, Subd 4e: SNA acquisition, restoration, enhancement & public engagement	July 2011-June 2014	$ 1,640,000
ENRTF ML13, Ch 52, Sec 2, Subd 4b: SNA acquisition, restoration, enhancement & public engagement	July 2013-June 2016	$ 1,500,000
ENRTF ML14, Ch226, Subd 7a: SNA acquisition, restoration, enhancement & public engagement	July 2014-June 2017	$ 2,540,000
ENRTF ML15, Ch76, Sec 2, Subd 9c: SNA acquisition, restoration, enhancement & public engagement	July 2015-June 2018	$ 4,000,000
OHF ML11, 1SS, Ch6, Art1, Sec2, Subd 4b: Accelerated Prairie – SNA prairie restoration & enhancement (estimated SNA portion only)	July 2011-June 2016	$ 229,370
OHF ML11, 1SS, Ch6, Art1, Sec2, Subd 4a: SNA & NPB acquisition (estimated SNA portion only)	July 2011-June 2016+	$ 702,100
OHF ML12, Ch262, Art1, Sec2, Subd 4h: Accelerated Prairie – SNA prairie restoration & enhancement (estimated SNA portion only)	July 2012-June 2017	$ 276,940
OHF ML13, Ch137, Art1, Sec2, Subd 4g: Accelerated Prairie – SNA prairie restoration & enhancement (estimated SNA portion only)	July 2013-June 2018	$ 144,170
OHF ML13, Ch137, Art1, Sec2, Subd 4c: SNA & NPB acquisition (estimated SNA portion only)	July 2013-June 2018+	$ 246,500
OHF ML14, Ch256, Art1, Sec2, Subd 4h: Accelerated Prairie – SNA prairie restoration & enhancement (estimated SNA portion only)	July 2014-June 2019	$ 285,650
OHF ML14, Ch256, Art1, Sec2, Subd 4a: SNA acquisition	July 2014-June 2019+	$ 1,070,000
OHF ML15, 1SS, Ch1, Art1, Sec2, Subd 2a: SNA acquisition	July 2015-June 2020+	$ 1,000,000
OHF ML15, 1SS, Ch1, Art1, Sec2, Subd 2k: Accelerated Prairie – SNA prairie restoration & enhancement (estimated SNA portion only)	July 2015-June 2020	$ 762,000
State Wildlife Grant (federal) – SNA management plans	March 2012-August 2013	$ 49,800

VIII. RESTORATION REQUIREMENTS:

A. Parcel List: See attached list.

B. Acquisition/Restoration Information:

Restoration

1. **Provide a statement confirming that all restoration activities completed with these funds will occur on land permanently protected by a conservation easement or public ownership.**
   All restoration-related activities done with this appropriation are on lands designated as SNA which the state owns in fee or easement.

2. **Summarize the components and expected outcomes of restoration and management plans for the parcels to be restored by your organization, how these plans are kept on file by your organization, and overall strategies for long-term plan implementation.**
   Each restoration project will be based upon an ecological restoration and management plan and/or project plan with goals for reconstructing plant communities that are native to the site that are based upon soils, topography, geology, and other factors necessary to sustain the plant community. Each plan includes an implementation timetable which summarizes ongoing management needs. Each restoration and management plan and project plan is kept in a DNR internal shared electronic filing system accessible to all SNA staff.

3. **Describe how restoration efforts will utilize and follow the Board of Soil and Water Resources "Native Vegetation Establishment and Enhancement Guidelines" in order to ensure ecological integrity and pollinator enhancement.**
   The SNA Program follows or exceeds the recommendations found in the BWSR "Native Vegetation Establishment and Enhancement Guidelines". SNA restorations typically follow the current BOWSR Guidelines, including Project Guidance, Plant Community Restoration, Temporary Cover and Forest/Woodlands. The SNA Program follows the general direction of the BWSR Guidelines for "Recommended Steps for Obtaining Plant Materials", and has additional and more restrictive requirements for restoration material sources. Specifically, restoration and management of DNR lands are governed by DNR Operational Order #124 on "Plant Material Standards for Native Plant Community Restoration" and #130 on "Pollinator Habitat" (which include BMPs).

4. **Describe how the long-term maintenance and management needs of the parcel being restored with these funds will be met and financed into the future.**
   Long-term management costs (e.g. invasive species treatments, prescribed fire/disturbance, and monitoring/evaluation) will be covered by a combination funding sources, including, but not limited to, ENRTF, Outdoor Heritage Fund (OHF), federal grants, and other funds as appropriated.

5. **Describe how consideration will be given to contracting with Conservation Corps of Minnesota for any restoration activities.**
   DNR has a standing general contract with CMM under which the SNA Program often does project or activity specific agreements. For restoration projects, CCM has been and will continue to be used when appropriate for hand seed harvest. CCM also does some invasives species control on SNAs and will be considered on restoration projects for post-planting weed control.

6. **Provide a statement indicating that evaluations will be completed on parcels where activities were implemented both 1) initially after activity completion and 2) three years later as a follow-up. Evaluations should analyze improvements to the parcel and whether goals have been met, identify any problems with the implementation, and identify any findings that can be used to improve implementation of future restoration efforts at the site or elsewhere.**
   Plant community reconstruction and rehabilitation projects will be evaluated and a report submitted to the LCCMR to ascertain how well the native plants have been established and non-natives controlled. The evaluation reports include a summary of management plan outcomes, activities completed through the project, maps of the project area, a statement of ongoing management needs and funding, and a summary of the evaluation.

IX. VISUAL COMPONENT or MAP(S): See attached ML16 SNA Restoration Projects map set.

X. RESEARCH ADDENDUM: NA

XI. REPORTING REQUIREMENTS:

Periodic work plan status update reports will be submitted not later than November 1, 2016, April 1, 2017, November 1, 2017, April 1, 2018, November 1, 2018, and April 1, 2019. A final report and associated products will be submitted before September 15, 2019 (as necessary for state FY closeout data to be available and summarized).

Environment and Natural Resources Trust Fund
M.L. 2016 Project Budget-FINAL REPORT
Project Title: Scientific and Natural Area Restoration
Legal Citation: M.L. 2016, Chp. 186, Sec. 2, Subd. 09a
Project Manager: Ann Pierce
Organization: MnDNR
M.L. 2015 ENRTF Appropriation: $1,386,000
Project Length and Completion Date: 3 Years, June 30, 2019
Date of Report: August 15, 2019

ENVIRONMENT AND NATURAL RESOURCES TRUST FUND BUDGET	Revised Activity 1 Budget 2/13/2019	Amount Spent 6/30/2019	Activity 1 Balance	TOTAL BUDGET	TOTAL BALANCE
BUDGET ITEM					
Personnel (Wages and Benefits)	$604,600	$575,728	$28,872	$604,600	$28,872
Position Type 1: Coordinators & Planner - Activity 1: ~0.4 FTE acquisition for 2 yrs; Activity 2: ~0.5 FTE resto-related for 2 yrs - all spread over ~5 positions					
Position Type 2: Specialists, Technicians, & Naturalists - Activity 1: ~0.6 FTE acquisition for 2 yrs; Activity 2: ~3.6 FTE resto-related for 2 yrs - all spread over about ~12 positions					
Position Type 3: Laborers & Seasonal Field Crews - all Activity 2: ~2.4 FTE for 2 yrs - spread over ~9-15 positions					
Professional/Technical/Service Contracts	$426,100	$230,043	$196,057	$426,100	$196,057
Professional/Technical Contracts					
Act. 2d. ~12 interpretive kiosk panel research & design (~$7K) - contractors to be selected following state procurement & bidding processes					
Act. 2f. ~8 mgmt. plans (~$40K) - contractors to be selected following state procurement & bidding processes					
Act. 2g. adaptive mgmt. monitoring at ~5 SNAs (~$19K);					
Service Contracts					
Act. 2 including 2c. restoration-related activities (~$7K at ~$2000-$5000/ac) - priority given to CCM; contractors to be selected following state procurement & bidding processes					
Act. 2b. woody encroachment removal & invasives control (~$255K at ~$1000-$5000/ac) - priority given to CCM; contractors to be selected following state procurement & bidding processes					
Act 2c. prescribed burning, haying, mowing, browsing or grazing (~$29.7K at ~$100-$700/ac - priority given to CCM; contractors to be selected following state procurement & bidding processes					
Act 2d. site development (fences, signs, etc) (~$4.1K) - priority given to CCM; contractors to be selected following state procurement & bidding processes					
Contract: IT Services (Mn.IT service agreements) Adaptive Management Spatial Database upgrades to integrate restoration planning/ecological data, implementation & monitoring	$25,000	$21,505	$3,495	$25,000	$3,495
Equipment/Tools/Supplies Activity 2: parts, tools, repair costs & supplies for restoration, invasives control, prescribed burning, etc (this is largely for SNA tools, such as chain saws, pump cans, drip torches, fire racks, pulaskis, other handtools, backpack sprayers, portable pumps & hose, personal protective equipment, etc, & supplies such as herbicides, spreading oils, flagging, stakes, etc) (~$33.6K); signs (entry,boundary & rules signs), posts/hardware, fencing, gravel, & other site development tools & supplies (~$47.2K); monitoring supplies & materials (~$8.208K).	$89,693	$39,218	$50,475	$89,693	$50,475
Printing Activity 2: interpretive sign panels.	$5,000	$3,150	$1,850	$5,000	$1,850
Travel expenses in Minnesota Fleet charges for trucks, cars, & equipment (e.g. mowers, seeders), mileage, lodging & meals as per state contracts	$161,950	$126,847	$35,103	$161,950	$35,103
Other DNR's direct and necessary costs ($73,657 total) pay for activities that are directly related to and necessary for accomplishing appropriated programs/projects. In addition to itemized costs captured in our proposal budget, direct and necessary costs cover People/HR Support ($18,624), Safety Support ($4,390), Financial Support ($16,791), Communication Support ($6,180), IT Support ($22,352, Planning Support ($4,145) and Procurement Support ($1,175) that are necessary to accomplishing funded programs/projects.	$73,657	$65,074	$8,583	$73,657	$8,583
COLUMN TOTAL	**$1,386,000**	**$1,061,565**	**$324,435**	**$1,386,000**	**$324,435**

Environment and Natural Resources Trust Fund
M.L. 2016 Parcel List-FINAL REPORT

Project Title: Scientific and Natural Area Restoration
Legal Citation: M.L. 2016, Chp.186, Sec. 2, Subd. 09a
Project Manager: Ann Pierce
Organization: Minnesota Department of Natural Resources, Division of Ecological & Water Resources
M.L. 2016 ENRTF Appropriation: $1,386,000
Project Length and Completion Date: 3 Years, June 30, 2019
Date of Report: August 15, 2019

#	Acquisition or Restoration Parcel Name	Geographic Coordinates Format: [Deg.]° [Min.]' [Sec.]" [Hemis.] Latitude	Longitude	Estimated Cost	Estimated Annual PILT Liabilities	County	Site Significance	Activity Description	# of Acres	# of Shoreline Miles	Type of Landowner	Proposed Fee Title or Easement Holder (if applicable)	Status
1	Blanket Flower Prairie SNA	46° 41' 7.7"	96° 12' 18.1"	$ 36,000		Clay	reconstruct dry gravel prairie	restore prairie	36		public	DNR-SNA	Not completed through this appropriation.
2	Cannon River Turtle Preserve SNA	44° 34' 22.1"	92° 40' 42.1"	$ 60,000		Goodhue	reconstruct bedrock bluff prairie	restore prairie	20		public	DNR-SNA	Initial seed collection done through this appropriation, restoration completed through alternative funding
3	**Mound Springs Prairie SNA**	**44° 45' 54.8"**	**96° 27' 3.8"**	**$ 15,000**		**Yellow Medicine**	**reconstruct mesic prairie comparable to adjoining MBS mapped prairie**	**restore prairie**	**10**		**public**	**DNR-SNA**	**Two restorations completed (7.1 acres and 0.5 acres)**
4	Rock Ridge SNA	44° 5' 49.5"	95° 4' 14.5"	$ 12,000		Cottonwood	reconstruct mesic prairie comparable to adjoining MBS mapped prairie	restore prairie	8		public	DNR-SNA	Restoration completed through ML15 ENRTF
5	**Sandpiper Prairie**	**47° 14' 32.2"**	**96° 24' 16.3"**	**$ 40,000**		**Norman**	**reconstruct wet-mesic prairie**	**restore prairie**	**40**		**public**	**DNR-SNA**	**Site preparation done with ML15 ENRTF, Restoration completed through this appropriation.**
6	**Hemlock Ravine SNA**	**46° 40' 3.5"**	**92° 21' 6.0"**	**$ 6,600**		**Carlton**	**rehabilitate slide areas/prevent erosion**	**restore forest**	**2**		**public**	**DNR-SNA**	**Resortation Completed**
7	Mille Lacs Moraine	46° 16' 55.8"	93° 51' 13.4"	$ 15,000		Crow Wing	reconstruct mesic hardwood forest	restore forest	2		public	DNR-SNA	Not completed through this appropriation.

Note: prescribed burning, invasive species control, and other site improvements will occur on designated SNAs not listed above.

ML 16
Environment and Natural Resources Trust Fund
Final Report
SNA Restoration Projects