

M.L. 2014 Project Abstract

For the Period Ending June 30, 2017

PROJECT TITLE: Upland and Shoreline Restoration in Greater Metropolitan Area

PROJECT MANAGER: Wiley Buck

AFFILIATION: Great River Greening

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FUNDING SOURCE: Environment and Natural Resources Trust Fund

LEGAL CITATION: M.L. 2014, Chapter 226, Section 2, Subd. 6f

APPROPRIATION AMOUNT: \$300,000

AMOUNT SPENT: \$257,677

AMOUNT REMAINING: \$42,323

Overall Project Outcomes and Results

Along with partners and volunteers, Great River Greening completed twelve restoration projects to reduce habitat fragmentation, enhance habitat quality, and reconnect habitat corridors. With Trust Funds and leveraged matching funds, Greening conducted restoration and enhancement efforts on ecological corridors and ecological cores on 291 acres of prairie, oak savanna, woodland, wetland, and riparian habitats. In addition, Great River Greening created community connections, engaging and educating a total of 892 volunteers at five project sites. At these restoration events, volunteers performed habitat restoration techniques, participated in a roving presentation by an ecologist, learned about the larger restoration process at the site, and gained insight on how to transfer knowledge gained to a project at home or in their local community.

Great River Greening produced the following results:

1. Completed a management plan for Westwood Hills Nature Center (WHNC) in St. Louis Park, to “enhance the diversity and resilience of the plant communities at WHNC to increase their value as both wildlife habitat and to enhance their utility as outdoor classrooms.”
2. Restored/enhanced 135.5 acres of upland habitat with Trust Funds (target = 147 acres), which included 0.6 miles of shoreline (target = 0.26 miles), at an average cost of \$1902 per acre. Restored/enhanced an additional 155.5 acres with leveraged matching funds for a total of 291 acres of habitat restored/enhanced (target = 247 acres).
3. Engaged 892 volunteers in meaningful restoration projects with environmental education from Greening ecologists (target = 300 volunteers). 294 of 892 volunteers were youth, age 17 or under.
4. Leveraged \$114,885 in non-state funds and \$189,419 in state funds, for a total of \$304,304 leveraged matching funds for habitat restoration/enhancement, volunteer events, and management plan development.

Summary Table: Trust Fund Deliverables by Parcel

Parcel Name	City	County	Habitat Acres	Shoreline miles	Volunteers
Katherine Abbott Park Phase II	Mahtomedi	Washington	10	0.0	106
Carver Park Reserve	Victoria	Carver	16	0.0	51
Allemansratt Park Phases I, II, III	Lindstrom	Chisago	23	0.0	0
Trout Brook Nature Preserve Phase II	St. Paul	Ramsey	2	0.0	524
Lilydale Bluffs	St. Paul	Ramsey	0	0.0	0
Accelerated Migration Technique	Cottage Grove	Washington	3	0.0	0
Prescribed Grazing/Haying, at a) Central Corridor b) Pilot Knob Hill	a) Cottage Grove b) Mendota Heights	a) Washington b) Dakota	34	0.0	63
Westwood Hills Nature Center Phase I, II	St. Louis Park	Hennepin	25	0.1	148
Wolsfeld Woods SNA	Long Lake	Hennepin	11	0.5	0
Dodge Nature Center II	West St. Paul	Dakota	8	0.0	0
Bur Oak Research: Central Corridor, Allemansratt Park, Otter Lake, Fish Creek Open Space	Cottage Grove, Maplewood, Lindstrom, White Bear Lake	Chisago, Ramsey, Washington	3	0.0	0
Fish Creek Open Space	Maplewood	Ramsey	0.5	0.0	0
TOTALS			135.5	0.6	892

Summary Statement: Great River Greening restored/enhanced 135.5 acres of habitat (92% of output target) with \$257,677 Trust Fund dollars (86% of Trust Fund appropriation expended) and engaged 892 volunteers in community restoration projects.

Project Results Use and Dissemination

Greening is in active partnership with landowners, other land managers, service providers, conservation peers, and volunteers resulting in a dynamic and timely exchange of information and results.

Volunteer event descriptions acknowledging Trust Fund contributions and qualitative results were emailed to Greening’s e-subscribers in July 2014, February 2015, July 2015, spring 2016, fall 2016 and spring 2017 in advance of spring and fall volunteer event seasons; over the course of the grant, the number of subscribers increased from approximately 5,000 to over 8,500. Information about Metro Conservation Corridors is on the Great River Greening website at <https://www.greatrivergreening.org/category/mccorridor/>; over the course of the grant, visits to the website increased from 1,100 to over 1,500 visits per month. In addition, Greening’s Facebook and Twitter pages have featured the Pilot Knob Grazing Monitoring project, the Accelerated Migration/ White Oak Ecotype Study at Central Corridor, Allemansratt Wilderness Park, Trout Brook, Westwood Hills, and Carver Park.

In March 2017, 150 attendees convened to attend *The Best Practices for Pollinators in the Real World Summit, for Minnesota Counties, Municipalities, Leaders*. During the conference, Washington County Parks presented on Innovative Management Approaches, highlighting the South Washington conservation haying project. In addition, five press articles from the Pioneer Press, Star Tribune, and Lillie News disseminated information about Pilot Knob Hill, publicizing its addition to the National Register of Historic Places and the prescribed grazing project.



Environment and Natural Resources Trust Fund (ENRTF) M.L. 2014 Work Plan Final Report

Date of Final Report: August 15, 2017
Date of Work Plan Approval: June 4, 2014
Project Completion Date: June 30, 2017

PROJECT TITLE: Upland and Shoreline Restoration in Greater Metropolitan Area

Project Manager: Wiley Buck
Organization: Great River Greening
Mailing Address: 35 W. Water St.
City/State/Zip Code: St. Paul, MN 55107
Telephone Number: (651)-272-3981
Email Address: wbuck@greatrivergreening.org
Web Address: www.greatrivergreening.org

Location: Carver Chisago Dakota Goodhue Isanti Ramsey Washington Hennepin

Total ENRTF Project Budget:	ENRTF Appropriation:	\$300,000
	Amount Spent:	\$257,677
	Balance:	\$42,323

Legal Citation: M.L. 2014, Chapter 226, Section 2, Subd. 6f

Appropriation Language:

\$300,000 the second year is from the trust fund to the commissioner of natural resources for an agreement with Great River Greening to restore and enhance upland, shoreline, and approximately 150 acres of forests, woodlands, savanna, and prairie and to provide related educational opportunities for volunteers in the greater metropolitan area. A list of proposed restorations and enhancements must be provided as part of the required work plan. This appropriation is available until June 30, 2017, by which time the project must be completed and final products delivered.

I. PROJECT TITLE: Upland and Shoreline Restoration in Greater Metropolitan Area

II. PROJECT SUMMARY/PROJECT STATEMENT:

Much of the remaining natural habitat within the Greater Twin Cities metropolitan area is threatened by conversion, fragmentation, invasive species, development, altered hydrology, and climate change. Restoration and management of these habitats is needed to save Minnesota's natural heritage for future generations, protect rare and declining species, protect our clean water, reconnect habitat corridors, and engage community volunteers in meaningful parts of the work, so they can better enjoy and understand the restoration/enhancement process, all to safeguard these natural treasures through time.

We have identified five (5) new sites for restoration/enhancement projects, and for two (2) of these sites management plans will be written for current and future phases of implementation. We have three (3) projects entering new phases, as well as implementation and evaluation of accelerated migration of oak ecotypes, and prescribed grazing/haying in the metro area.

During our volunteer events, volunteers will receive hands-on training and education on how to replicate the restoration/enhancement activities at home or other sites; the ecological importance of the task, the site including its location and connection to other natural areas; invasive species sanitation protocol; and a customized topic such as but not limited to plant identification, invertebrate management, live animals, or visualizing carbon. All training and education will be done in small groups of 20 or less to facilitate question and answer, and include hands-on training, large aerial maps, reference material, and evaluation by the volunteers.

By working with an array of local, state, federal, non-profit, and private partners, and landowners, Greening will restore/enhance 147 acres and 0.26 mile of shoreline; and engage at least 300 volunteers in meaningful parts of the work. We will also restore/enhance an additional 100 acres and 0.17 mile of shoreline with leveraged funds. These projects are exemplary of our continued engagement in the Anoka Sandplain, collar counties, metropolitan core, Wild & Scenic Rivers, and innovative restoration/enhancement techniques.

III. PROJECT STATUS UPDATES:

Amendment Request August 1, 2014:

Greening requests to begin spending our 2014 appropriation before the 2013 appropriation is fully expended. In general, deliverables and budgets are based on the specific project lists for each appropriation. In particular, projects #7, 8 and 9 of the 2014 restoration list are ready to go and will need the full 3-year grant period.

Amendment Approved: 8/11/14

Amendment Request February 1, 2015:

Greening requests to amend our project list by adding four projects: Lake St. Croix North Beach management plan; Westwood Hills Nature Center forest restoration; Mitten Pond youth engagement in restoration; and Wolsfeld Woods SNA forest restoration. The Camp Tanadoona and Wild & Scenic Rivers III projects are not going forward, freeing up funds for these four new projects.

Amendment Partially Approved: February 3, 2015, to include Westwood Hills Nature Center and Wolsfeld Woods SNA only.

Project Status as of February 1, 2015:

Four projects have begun: Carver Park Reserve Oak Woodland Enhancement, Allemansratt Park Forest Restoration, Central Corridor Accelerated Oak Migration, and Prescribed Grazing/Haying at Central Corridor and Pilot Knob Hill.

Two projects are nearly underway: Katherine Abbot Park II forest restoration has reached a signed agreement with the landowner; and for Lilydale Bluffs restoration we are very close to reaching a signed agreement. For Trout Brook Phase II and Ojiketa Regional Park forest restoration we remain engaged in negotiations with the landowner.

Our early projections, including the proposed projects, indicate we are on track to restore 160 acres, exceeding our goal of 150 acres.

Amendment Request April 6, 2015:

Greening seeks permission to add the Grant Management Assistant position to our Personnel list. The Grant Management Assistant will be responsible for uploading Greening projects into the DNR spatial project database including submission of GIS shapefiles; take the lead on tracking the required restoration evaluations; and assist the Project Manager with submission of status reports, work program amendments, and other tasks as assigned. We wish to shift \$2,000 in personnel funds from the Project Manager position to the Grant Management Assistant position.

Amendment Approved: 4/6/15

Amendment Request August 1, 2015:

Greening respectfully requests the following changes:

- Adjustments to project budgets: Greening has refined projections and estimates of project costs, based on changes in project acreage (Carver Park Reserve), received bids, and updated revised internal estimates as the projects progress. These project budgets are updated in our Restoration List to reflect these more accurate cost projections.
- Reallocation between budget categories: Greening requests allocation of \$5,000 to the budget category “Contracts—restoration/enhancement: invasive species control, mowing, prescribed burning” in order to cover anticipated contracts at Carver Park Preserve, completing work on additional acreage. To cover this addition, we request a reduction of \$5,000 in the budget category “Contracts—restoration/enhancement: erosion control, earthwork for shoreline restoration.” We expect that these funds will not be needed in this budget category given that Ojiketa Regional Park project is not moving forward.
- Deletion of Outcome 1 from Activity 1: As approved in the Feb 1 2015 status report, the Camp Tanadoona project is not going forward. Deletion of Outcome 1 (pg 4) reflects this change. The \$10,000 initially budgeted for Outcome 1 has been shifted to Outcome 3 (+\$4,000), Outcome 4 (+\$4,000) and Outcome 5 (+\$2,000). These reallocations correspond with the changes made to the project list, which reflect updated, more accurate projections of project costs, as noted above.

Amendment Approved: 8/17/2015

Project Status as of August 1, 2015:

Three additional projects have begun for a total of seven projects with work underway: Katherine Abbott II, Lilydale Bluffs Management Plan, Westwood Hills Nature Center, Carver Park Reserve Oak Woodland Enhancement, Allemansratt Park Forest Restoration, Central Corridor Accelerated Oak Migration, and Prescribed Grazing/Haying at Central Corridor and Pilot Knob Hill.

Ojiketa Regional Park project will not be moving forward. We anticipate using those earmarked funds for expanding the Allemansratt project. With these and other changes, we are now projecting to reach 160 ENRTF restored acres, and 175 acres restored with matching funds; with the loss of Ojiketa as a project we no longer project any shoreline restoration.

Amendment Request September 3, 2015:

Greening requests to add Dodge Nature Center Phase II to our project list. We are essentially splitting off the prairie seeding portion of the larger Dodge Nature Center project in our 2013 appropriation and making it this second phase of the project. By so doing, the prairie seeding will benefit by an extra year of establishment activities before the grant period ends. The Allemansratt Park II project will be reduced in scale, freeing up funds for Dodge Nature Center.

Amendment Approved: 9/9/2015

Amendment Request February 1, 2016:

We propose to shift \$20,000 from “Contracts: Restoration/enhancement activities for shoreline such as erosion control, earthwork for shoreline restoration” (down from \$30,000 to \$10,000) to the category of “Contracts: Restoration/enhancement activities such as invasive species control, mowing, prescribed burning” (up from \$35,000 to \$55,000). This is to complete anticipated activities at our upland sites.

Amendment Approved: 2/4/2016

Project Status as of February 1, 2016:

All of our current projects are underway, with the exception of City of Lilydale bluffs, which has been put on hold until the adjacent Highway 13 stormwater improvements are completed. These improvements are scheduled for completion in summer 2016, and when completed will affect the hydrology on a portion of the restoration project area.

Updated language in the accelerated oak migration work of Activity 1 is shown in underline. This new language is intended to clarify, and to distinguish from the bur oak (*Quercus macrocarpa*) study in the 2015 appropriation.

Also for clarity, we have combined projects Allemansratt Park I and Allemansratt Park II together into one project, Allemansratt Park Phases I and II, with the value of their previous two budgets combined (\$56,000).

In the August 2015 update, an error was discovered in the reported acres for the Westwood Hills Nature Center project. We had reported the number of acres that will be covered by the multi-phase management *plan* (33 Trust Fund acres), but instead we should have reported only the *restored* deliverables of 5 acres and 0.03 mi shoreline. 5 *restored* acres which is close to the amounts we reported originally in the February 2015 update. With the correction of this error, we anticipate that our current project list and plan will lead to 138 acres and 0.03 mi of shoreline restored with Trust Fund appropriation, compared to the ‘approximately 150 acres’ in the appropriation language. Our projected acreage is down ultimately due to the earlier loss (due to lack of City agreement) of the Ojiketa Regional Park project, which included many low-cost acres of forest restoration.

We also made an error by reporting encumbered funds rather than expended funds in the August 1, 2015 Project Status Report. As of August 1, 2015 we had expended only \$28,972 rather than the \$92,187 reported. The amount reported in this status report has been corrected and is for expended funds only.

Project Status as of August 1, 2016:

We are projecting a total of 134 acres restored by the end of the grant period, and have engaged a running total of 625 volunteers, more than double our deliverable, in educational restoration activities.

A total of nine projects remain underway. Our tenth project, the City of Lilydale bluffs project, remains on hold until the adjacent Highway 13 stormwater improvements are completed in late summer 2016.

Amendment Request February 1, 2017:

The City of Lilydale’s sub-contractor did not complete the Highway 13 stormwater improvements this past fall as anticipated; the anticipated completion date is now spring 2017. We cannot begin the Lilydale Bluffs restoration until these improvements are made, and with this latest delay we no longer have sufficient time to complete this project before the 2014 allocation ends. Therefore, we seek to a portion of the Lilydale Bluffs project to the 2016 appropriation. In turn, we seek to move a portion of the Westwood Hills Phase II and Allemansrätt Phase III projects from the 2016 allocation to the 2014 allocation (Westwood Hills Phase I, and Allemansrätt Phase I and II, are currently included in the 2014 restoration list).

In addition, Carver Park and Wolsfeld Woods projects are coming in under budget. We would like to add the Bur Oak Accelerated Migration and Fish Creek Pollinator projects onto the 2014 project list, while also keeping them on the 2015 project list. This will allow us to spend down the 2014 funds more rapidly, and allow us to somewhat increase the total budgets for these projects, as installation and fencing costs are coming in higher than estimated for these projects. Project deliverables will be pro-rated over the two appropriations.

Amendment Approved by LCCMR 2/27/2017

Project Status as of February 1, 2017:

We are projecting a total of 126 acres restored by the end of the grant period. This is down from the last status update estimate largely because of additional match and the corresponding updated pro-rating of acres, at 3 projects. We have engaged a running total of 750 volunteers, more than double our deliverable, in educational restoration activities.

Other than the City of Lilydale Bluffs projects, all projects are underway. We are showing a relatively large remaining balance; our projections and existing commitments indicate that we will spend all but about \$40,000, this surplus largely a result of bringing in more match funds than anticipated.

Two description clarifications are included in Attachment A.

Overall Project Outcomes and Results:

Along with partners and volunteers, Great River Greening completed twelve restoration projects to reduce habitat fragmentation, enhance habitat quality, and reconnect habitat corridors. With Trust Funds and leveraged matching funds, Greening conducted restoration and enhancement efforts on ecological corridors and ecological cores on 291 acres of prairie, oak savanna, woodland, wetland, and riparian habitats. In addition, Great River Greening created community connections, engaging and educating a total of 892 volunteers at five project sites. At these restoration events, volunteers performed habitat restoration techniques, participated in a roving presentation by an ecologist, learned about the larger restoration process at the site, and gained insight on how to transfer knowledge gained to a project at home or in their local community.

Great River Greening produced the following results:

1. Completed a management plan for Westwood Hills Nature Center (WHNC) in St. Louis Park, to “enhance the diversity and resilience of the plant communities at WHNC to increase their value as both wildlife habitat and to enhance their utility as outdoor classrooms.”
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Fish Creek Open Space	Maplewood	Ramsey	0.5	0.0	0
TOTALS			135.5	0.6	892

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Per the February 1, 2017 status report, Greening projected a reduced output of 126 acres restored by the end of the grant period (actual = 135.5 acres). This decrease in acreage was due to an increase in leveraged matching funds. The additional matching funds secured and expended also contributed to the \$42,323 unexpended portion of the Trust Fund appropriation.

IV. PROJECT ACTIVITIES AND OUTCOMES:

ACTIVITY 1:

Description: Restoration and Enhancement

Restoration and enhancement activities include planning, invasive species control, seeding/plugging, prescribed burning of oak woodlands, establishment of planted trees, grazing and haying of restored prairies and savannas with vegetation and invertebrate monitoring, and planting of local ecotype vs. southern ecotype young white oaks (*Quercus alba*), with monitoring and evaluation of growth and survival.

Summary Budget Information for Activity 1:

ENRTF Budget: \$ 300,000
Amount Spent: \$ 257,677
Balance: \$ 42,323

Activity Completion Date: June 30, 2017

Outcome	Completion Date	Budget
1. Lilydale Bluffs Management Plan Completed	June 30, 2017	\$ 15,000
2. Accelerated Migration and Prescribed Grazing/Haying Implemented	July 1, 2015	\$ 19,000
3. Accelerated Migration and Prescribed Grazing/Haying Evaluated, Results Disseminated	June 30, 2017	\$ 30,000
4. Restoration/Enhancement at Eight (8) Sites, Results Disseminated	June 30, 2017	\$ 236,000

Activity Status as of February 1, 2015:

At Carver Park Reserve, the RFP process has been completed and a contract has been signed to being woody invasive and woody encroachment removal, and prescribed burning. This fall, woody invasive control work began at Allemansratt Park, and will continue along with prescribed burning of several oak openings at the site.

This past fall, white oak (*Quercus alba*) acorns from Des Moines, IA and Onamia, MN were secured, then shipped to and sown at Badoura State Nursery. The resulting oak seedlings will be planted at Central Corridor in spring of 2016. An RFP process for the study design and monitoring of the growth and survival during the early years of these seedlings, comparing southern to local ecotype, is nearly complete.

Prescribed haying program has been designed and is poised for implementation, also at Central Corridor.

Prescribed grazing continued at Pilot Knob Hill, and included late summer goat browsing on overabundant Canada goldenrod (*Solidago canadensis*) and fall sheep grazing on overabundant bluegrass (*Poa pratensis*), both with underhoof seeding. A vegetation monitoring contract was awarded, and the first survey of the goat browsed area was completed using a stem analysis technique that generated data on percent grazed. The results were not encouraging, as the goats were less selective on Canada goldenrod than mowing, in that they grazed the less common vegetation at a higher frequency than the dominant Canada goldenrod. Because the browsing was conducted at a time when the Canada goldenrod was particularly vulnerable, and trampling and other disturbances were also present, the plots will be surveyed again for spring/summer vegetation response. To make the comparison more robust, we will add mowed areas and sprayed areas to the study. Like many restorations, particularly those that aim for a high forb component, Pilot Knob Hill has areas that are overly dominated by Canada goldenrod.

Activity Status as of August 1, 2015:

At Katherine Abbott Park II, woody and other invasive control began and included a 106 person volunteer event. At Lilydale Bluffs, restoration planning is underway with stakeholders using matching funds; several barriers to implementation have been identified as well as a strategy to address them within the next few months. At Carver Park Reserve, woody invasive species were removed with help from 42 volunteers. At Allemansratt Park, the first prescribed burn of a forest opening at the site was completed in the spring, providing buckthorn control and potentially stimulating a native understory seedbank.

For the Central Corridor Accelerated Oak Migration project, our white oak acorns purchased in fall 2014 from the Des Moines, IA area and Onamia, MN area and then sown into beds at the DNR Badoura Nursery, were monitored by DNR staff. DNR reported this spring that all seed stock (except butternut) collected from southern locations, including the white oak acorns we had sown there collected from the Des Moines area, suffered germination failure, likely due to winter seed damage as a result of thin snow cover. Fortunately, beds of white oaks from Onamia, MN and southeastern Minnesota germinated in spring 2014 and are available for purchase; our study will be proceeding using 2-year old oaks from these locations, with planting in fall 2015.

For the Prescribed Haying at Central Corridor, tests have been conducted to characterize the pre-treatment plant community, pollinator diversity, and soil nitrogen levels. The first haying treatment is targeted for August; the process for identifying and selecting a haying contractor or local ag cooperator is underway.

For the Prescribed Grazing at Pilot Knob Hill, grazing treatments continued with spring sheep grazing on 0.5 ac of overabundant bluegrass (*Poa pratensis*), with underhoof seeding of mesic prairie grass seed, partnering with Dodge Nature Center farm program, to be followed by a vegetation survey later in the growing season. In late April, a group of 30 volunteers installed sheep fencing, prepped the site, sowed seed under-hoof, and assisted with the delivery of the sheep. A second vegetation survey was contracted and completed in July for the 1 ac goat-browsed paddock, but data analysis has not been completed due to intense contractor field work load (anecdotally, Canada goldenrod appeared to be reduced).

At Westwood Hills Nature Center, site assessments and mapping have begun, and a spring event involved 13 volunteers in removal of invasive species and planting of 300 native wildflowers.

Due to the lack of landowner agreement, matching funds, and in-kind capacity, Ojiketa Regional Park project will not be moving forward. We propose to move the funds earmarked for Ojiketa over to expansion of the Allemansratt project into phase II. Largely due to this change in our project list, we are now projecting to reach 160 ENRTF restored acres, (meeting the deliverable stated in the appropriation language); 175 acres restored with matching funds, exceeding our goal; and no shoreline mileage.

Enhanced education at volunteer events were centered around our 'roving presentations', where an ecologist, typically joined by the landowner and our volunteer manager, meet with previously assigned small groups of volunteers, presented during the middle of the work activities. These roving presentation featured aerial maps of the work site including location connectivity to other ecological resources, complete explanation on the task at hand and how it fit into the larger restoration process, how to transfer this knowledge to a project outside of the volunteer event (e.g. honeysuckle control at your home). Custom topics included wildflower identification (Katherine Abbott, Carver Park), the practice and potential of conservation grazing (Pilot Knob), buckthorn ID and history (Carver Park), and the importance of managed tree canopies for reducing soil erosion (Westwood Hills). Volunteer evaluations of the events showed that the roving presentations imparted knowledge and allowed volunteers to leave the events with a greater understanding of the natural world and conservation topics, as well as a connection to the site where the event occurred. Many volunteers have either returned to or have indicated that they intend to return to these sites for recreational purposes or to watch the continued restoration.

Activity Status as of February 1, 2016:

During the fall of 2015 at Katherine Abbott Park, invasive woody species were removed from 16 forested acres, and the restoration of sedge meadow wetland began with invasive reed canary grass control.

At Carver Park Reserve, the invasive species control effort continued with spraying, mowing, and removal of brush piles.

At Allemansratt Park, the project was expanded, and 27 acres have now been cleared of woody invasive species from this otherwise high quality mosaic of forest and wetland.

Trout Brook II project is underway with tree and shrub establishment.

For the Accelerated Migration/White Oak Ecotype Study at the Central Corridor site, 1000 two-year old oaks were planted; 500 of the southern ecotype, and 500 of the local ecotype, with monitoring to begin in 2016.

Also at Central Corridor, we developed the haying research experimental design and delineated the treatment plots from control plots by mowing their perimeters; invasive species control occurred to make the hay product more desirable. A prescribed haying RFP process was completed, and a service contract was awarded. Haying was then implemented on 47.5 acres of 80 acres. We also designed the pollinator and vegetation sampling protocols. Baseline data was then collected for floristic quality, percent cover, and pollinator diversity. Vegetation and pollinator data was collected three more times during the season, and soil samples were taken and analyzed for nitrogen levels.

At the Westwood Hills Nature Center, forest restoration is underway with removal of invasive species, and understory plug planting. A 29 person corporate volunteer event occurred in September. Volunteers planted 350 spring ephemeral flowers and received a small group presentation by a Greening ecologist on life strategies of spring ephemerals, and their importance to pollinators. Placards with photos of the flowers were included.

For the Wolsfeld Woods SNA and the Dodge Nature Center II prairie seeding, Greening completed RFP processes and selected subcontractors for the projects. At Dodge Nature Center, site preparation began with woody encroachment removal and boom spraying of the non-native old field vegetation. The bids received for the Wolsfeld Woods SNA forest enhancement project came in significantly under budget. Funds have since been added to Dodge Nature Center II to include prairie establishment; and to Central Corridor to cover more contract haying services.

Analysis of the 2015 vegetation monitoring data for the goat browsing at Pilot Knob Hill was completed, and results are encouraging. Overabundant Canada goldenrod (*Solidago canadensis*) was reduced year over year on four vegetation metrics (Importance Value, Relative Frequency, Stem Density, and Relative Density), stayed constant on two metrics (Plot Presence and Percent Frequency) and did not increase on any metric. Overall species diversity increased in goat browsed sample plots. Compared to the 2014 vegetation monitoring data, which indicated goats were preferentially browsing on the less common species than the dominant Canada goldenrod, likely to gain diversity in their diet, Canada goldenrod was reduced more than anticipated. The browsing was timed at a vulnerable time of year for Canada goldenrod, so the timing of the browsing, and trampling, are the likely factors contributing to its reduction.

No goat browsing occurred in 2015. The 2015 vegetation data collection, documenting the year-after effects of the 2014 browsing, occurred late in the season, by design to allow for comparison to the data collected in 2014. As stated in earlier updates, the 2014 data did not reveal desired outcomes. Given the desired outcomes revealed in the analysis of the 2015 data, however, goat browsing will resume in 2016, given a reasonable cost of implementation.

Walk-through visual analysis of the effects of spring 2015 sheep grazing in a second paddock also revealed encouraging results. Under-hoof seeding combined with moderate spring overgrazing and intense trampling resulted in conversion from 'old field' vegetation with Kentucky bluegrass as the dominant grass to dominant native grass with forb vegetation in one growing season. This occurred in a small area of the sheep paddock, near the gate and the water supply. The un-grazed control area and the rest of the paddock, which was equally grazed but only moderately trampled, did not convert to native vegetation dominance. Sheep grazing is scheduled to resume in spring 2016 with the continued participation by the Dodge Nature Center farm program for the livestock services. Soil nitrogen sampling and pollinator surveys will also be in 2016.

Overall, challenges remain in securing cost-effective livestock services in the metro area. To promote a metro grazing infrastructure, Greening and others formed a metro Goat Grazing Group as an official chapter of the Sustainable Farming Association. This group consists of land managers, agriculture and extension specialists, and area service providers, with the intent of reviewing case studies, disseminating results, coordinating prescribed grazing efforts, and working toward a metro infrastructure for cost-effective grazing services.

Activity Status as of August 1, 2016:

The enhancement at Katherine Abbott Park continued, with a second site preparation spraying of reed canary grass.

At Carver Park Reserve, forestry mowing was completed on remaining units, and prescribed fire was completed over half of the burn units.

A monitoring visit documented that the invasive woody control work from the previous winter has been effective at Allemansratt Park Phases I and II.

At a public volunteer event at Trout Brook Phase II, 243 volunteers, including 26 youth volunteers, planted 3,000 trees, shrubs, grasses and wildflowers, led by 20 Greening Volunteer Supervisors. During this Trout Brook event, Greening staff conducted small-group presentations to all volunteers on the values of the site and its restoration, as well as the benefits of planting these native species, especially as they relate to wildlife habitat, water quality, and human health. During the spring, 3 youth groups volunteered at the site: Twin Cities Academy; Avalon School; and Minnesota Math and Science Academy. Twin Cities Academy students performed invasive species control; seeded native grass mix; geocached to water quality design elements; and learned about the water quality design elements and the land:water connection for water quality. Avalon School students performed invasive species control; seeded native grass mix; learned about design elements for water quality; and conducted macroinvertebrate studies and water chemistry tests. Minnesota Math and Science Academy students participated in macroinvertebrate studies and learned about storm water design elements at the site and how they impact water quality; and learned about water quality aquatic indicator species.

White Oak Accelerated Migration activities at Central Corridor included re-marking the different ecotype tree stakes and taking GPS coordinates for the location; and monitoring of the survival of the 500 southern and 500 local ecotype white oak (*Quercus alba*).

Prescribed grazing at Pilot Knob Hill continued with another successful spring season using sheep to promote forbs over grasses; and native warm season grasses over cool season grasses by timing the overgrazing in May. Grazing was more intense than in past treatments, and was more intensely managed with three paddocks instead of one this year. Partnering with Dodge Nature Center contains the cost of these sheep grazing activities as well as provides the sheep expertise. On May 6, a total of 25 Girl Scouts and 4 leaders came to the site under the Girl Scout Connectz program. The youth removed herbaceous and woody invasive species; geocached to prescribed grazing and other natural resource and cultural elements; and learned about the importance of wildlife and grazing to a managed prairie site.

At Westwood Hills Nature Center, 2 acres have been restored, as a model for informing the management plan. A private event at Westwood Hills Nature Center involved 28 volunteers (20 general volunteers and 8 trained Greening Volunteer Supervisors) in clearing brush and planting wildflowers. Roving presentations focused on the importance of spring ephemeral wildflowers as early season nectar sources for pollinators such as queen bumble bees. Placards with photos of the flowers in bloom were presented, and included those of the wildflowers being planted during the event. An RFP for selective timber harvest has been significantly developed, with anticipated release in August.

At Wolsfeld Woods SNA, first wave woody invasive treatment was completed on five acres and .03 mi of shoreline.

At Dodge Nature Center II (Lily Preserve) the prairie site preparation was completed and the site seeded with native prairie in the spring of 2016.

Activity Status as of February 1, 2017:

The restoration at Katherine Abbott Park continued, with removal of wood piles, and additional removal of woody encroachment from the savanna area.

At Carver Park Reserve, forest restoration continued with a re-treatment of woody invasive species.

Forest restoration at Allemansratt Park Phases I and II included re-treatment of invasive shrubs. A winter pile burning volunteer event and woodland grass seeding was planned.

At Trout Brook Phase II, prairie establishment continued with mowing and spot spraying. Supplemental plugging with pollinator-friendly forbs was completed in fall 2016. A total of 53 volunteers were engaged in the planting activities, including 47 youth led by 6 trained volunteer supervisors.

First year growth and survival measurements were taken on about 860 trees (the other 140 in dense vegetation proved too difficult to locate) under the White Oak Accelerated Migration study. On most variables, the southern and the local ecotypes showed no significant differences. The southern ecotype trees did show significantly less bud damage, and significantly more branching, than the local ecotype trees. As first year data, these results and measurements are to be considered preliminary. A UST undergraduate research student presented a poster on these results at the UST Fall Inquiry Symposium on October 4, 2016.

Prescribed grazing at Pilot Knob Hill continued with intensive fall grazing, when the non-native grasses are dominant. Grazing continued at the more intense level and number of paddocks. Unfortunately, the extended fall weather subsequently allowed the non-native grasses to rebound significantly after the livestock were removed. The cost for goat browsing on late summer Canada goldenrod was prohibitive; a new vendor is now servicing the area and have been contacted regarding the next growing season.

At Westwood Hills Nature Center Phase I, Greening crew cut and chemically treated buckthorn. Volunteers hauled and stacked the buckthorn, engaging 93 general volunteers and 8 trained volunteer supervisors. The invasive removal work has recently progressed to forestry mowing.

At Dodge Nature Center II (Lily Preserve) supplemental seeding and additional woody removal occurred at the prairie planting. The restoration is proceeding ahead of schedule, with native species already dominant in many areas and early successional desirable native species common.

Final Report Summary:

Along with partners and volunteers, Great River Greening completed twelve restoration projects, reducing habitat fragmentation, enhancing habitat quality, and reconnecting habitat corridors on a total of 291 upland habitat acres, including 0.65 shoreline miles. These restoration sites contain fragmented communities of notable terrestrial communities, including big woods, southern dry-mesic woodland, southern mesic forest, dry prairie, and northern mixed cattail marsh and provide habitat for a number of species listed on the Minnesota DNR's list, in accordance with Minnesota's Endangered Species Statute (Minnesota Statutes, Section 84.0895), including four species of concern (trumpeter swan, cerulean warbler, red-shouldered hawk, and bell's vireo) and two threatened species (Clinton's bulrush, Blanding's turtle).

Five of the twelve restoration projects involved volunteers on the project site, totaling 892 volunteers engaged and educated under this grant. Volunteers received education at events, including a 'roving presentation' by an ecologist, instruction on the restoration technique and its role in the larger restoration process, and how to transfer this knowledge to a project outside of the volunteer event. Custom topics included wildflower identification (at Katherine Abbott and Carver Park), the practice and potential of conservation grazing (at Pilot Knob), buckthorn identification (at Carver Park), and the importance of managed tree canopies for reducing soil erosion (at Westwood Hills). Volunteer evaluations of the events showed that the roving presentations imparted

knowledge, with volunteers reporting that they left the event with a greater understanding of conservation topics as well as a greater connection to outdoor spaces. Many volunteers have either returned to or have indicated that they intend to return to restoration sites for recreational purposes or to check on restoration progress.

1. Katherine Abbott Park (10 Trust Fund acres and 14.5 match acres, 106 volunteers): Restored woodland and wetland habitat through contract work, including reed canary grass, tansy, and buckthorn removal and control through pulling small populations, stump and treat method, mowing, and foliar application. Burn plans are in place for maintenance. The public volunteer event engaged 67 adult and 25 youth volunteers as well as 14 volunteer supervisors in shoreline wetland planting and forest understory planting.
2. Carver Park Reserve (16 Trust Fund acres and 82 match acres, 51 volunteers): Restored oak woodland habitat through removal of woody invasive species, brush chipping, and herbicide application. Prescribed burns and mowing were conducted to eliminate invasive re-sprouting in the spring and work finished with graminoid seeding. One public event was held, engaging 51 volunteers.
3. Allemansratt Park (23 Trust Fund acres and 18 match acres): Restored and enhanced the woodland area by clearing woody invasive species from an otherwise high quality mosaic of forest and wetland. Techniques included cutting, herbicide treatment to stumps, foliar herbicide treatment, and treating any re-sprouts; a monitoring visit documented that the invasive woody control work was effective. A woodland grass mix was added to the understory.
4. Trout Brook Nature Preserve (2 Trust Fund acres and 4 match acres, 524 volunteers): Restored the ecological corridor connecting Trout Brook Greenway and the Mississippi River by establishing native plants and trees, and enhanced prairie habitat by mowing and spot spraying invasive species. One public and eight private events were held, engaging 264 adult and 226 youth volunteers as well as 34 trained volunteer supervisors. Volunteers planted trees, shrubs, and plugs and volunteer youth groups from three local schools performed invasive species control, seeded native grass mix, geocached, learned about water quality design elements and the land/water connection, conducted macroinvertebrate studies and water chemistry tests, and learned about water quality aquatic indicator species. At volunteer events, Greening staff conducted small-group presentations on the values of the site and its restoration, as well as the benefits of planting native species, especially as they relate to wildlife habitat, water quality, and human health.
5. Lilydale Bluffs (0 Trust Fund acres and 0 match acres): The City of Lilydale's sub-contractor did not complete the Highway 13 stormwater improvements until spring 2017. Given this delay, the management plan and the bluff habitat restoration will be completed under Greening's ML2016 appropriation.
6. Central Corridor Accelerated Migration (3 Trust Fund acres and 2 match acres): This study compared growth between local and Des Moines white oak ecotypes. Greening procured and planted the seedlings; University of St. Thomas researchers collected and analyzed data on 860 white oak seedlings. The 2017 data revealed significant differences in growth form (total height, new stem growth, number of leaves, number of branches), but no significant differences in total leaf area. A PowerPoint presentation has been prepared for distribution and presentation. Further research is anticipated beyond the grant period.
- 7a. Prescribed Haying at Central Corridor (33.5 Trust Fund acres and 14 match acres): Greening developed a haying research experimental design and delineated the treatment plot. Invasive species control occurred to make the hay product more desirable and haying was then implemented by contract on 47.5 acres. Baseline data, treatment and control data was collected for floristic quality, percent cover, soil N, and pollinator diversity. Data collection is complete, with final analysis of vegetation and soil data to be conducted in winter 2017-18.

- 7b. Prescribed Grazing at Pilot Knob Hill (0.5 Trust Fund acres and 0.5 match acres, 63 volunteers): Prescribed grazing was conducted during the spring and fall seasons over the course of the appropriation years. Goats were used for management of overabundant native broadleaf Canada goldenrod (*Solidago canadensis*), while sheep were used for management of overabundant bluegrass (*Poa pratensis*). Timing, intensity, rotation, containment, watering, and monitoring were all components of this management intensive grazing program. Vegetation results were encouraging. Grazing has the potential to offer selective management, as well as provide height and nutrient heterogeneity. We identified three possible barriers to metro grazing at the beginning of this project: 1) ordinances restricting the use of energized fencing; 2) public visitors inexperienced in interacting with livestock and energized fencing; and 3) lack of agricultural infrastructure. Barriers 1) and 2) were easily overcome with variances and visitors that needed only a little guidance and education, respectively. Barrier 3) persists as the main barrier. While local partners, namely Dodge Nature Center, provided animal and other valuable services, we were not able to reach economy of scale. For-profit grazing services are available, but must be compared to other techniques for cost-to-benefit. Once larger scale prescribed grazing options exist, grazing will become an effective and cost-effective tool. Data collection is complete, with final analysis of vegetation and soil data to be conducted in winter 2017-18.
8. Westwood Hills Nature Center (25 Trust Fund acres and 17 match acres, 0.1 Trust Fund shoreline miles and 0.05 match miles, 148 volunteers): Enhanced woodland and shoreland areas by removing exotic and low quality trees and increasing diversity and cover of ground layer vegetation. This was done through cut stump treatment, weed whipping, and herbicide treatment of garlic mustard, buckthorn, and exotic honeysuckle, and woodpile burns. Cleared areas were planted with plugs, bareroot trees, seed, and shrubs. Four private volunteer events engaged a total of 112 adult and 15 youth volunteers as well as 21 trained volunteer supervisors. Volunteers planted wildflowers, cleared brush, and received education by a Greening ecologist on life strategies of spring ephemerals and their importance to pollinators and circulated placards with photos of the flowers in bloom.
9. Wolsfeld Woods (11 Trust Fund acres and 0 match acres, 0.5 Trust Fund shoreline miles and 0 match miles): Restored habitat through woody invasive species management and seeding and enhanced shoreline through planting.
10. Dodge Nature Center (8 Trust Fund acres and 3 match acres): Reconstructed native prairie by conducting prescribed burns, cutting and applying herbicide and mowing to manage invasive species. The prairie site was then seeded and planted with oaks, and wet prairie depressions were enhanced with potted plants and plugs. The restoration demonstrated success, with native species dominant and early successional native species common in many areas.
11. Bur Oak Accelerated Migration (3 Trust Fund acres and 0 match acres): Contracted U of M research measurements continued at four sites with local, northwestern MN; and Des Moines bur oak seedling ecotypes. Planting, establishment and deer protection fencing underway at all sites. Additional project deliverables to be completed with ML2015 fund appropriation.
12. Fish Creek Pollinator Raingardens (0.5 trust acres and 0 match acres): 660 shoreline graminoid/forb plugs were purchased and installed with volunteers in multiple raingardens, as part of the larger citizen science restoration and pollinator study at this site. Additional project deliverables to be completed with ML2015 fund appropriation.

Projects including Camp Tanadoona, Wild & Scenic Rivers III: Rum and Cannon, and Ojiketa Regional Park did not go forward under this grant; funds were moved to other projects (listed above and approved previously). The Lilydale Buffs project was delayed and is now largely funded with the ML2016 appropriation.

V. DISSEMINATION:

Description:

Great River Greening periodically distributes information about the program through our e-postcard, 'Volunteer Opportunities' mailings, donor mailings and communications (including newsletter and annual report), at volunteer restoration events, and through our website www.greatrivergreening.org. Volunteer event descriptions acknowledging Trust Fund contributions are emailed to over 5,000 subscribers in advance of spring and fall volunteer event seasons. In addition, restoration/enhancement results, as well as the monitoring results of the prescribed grazing/haying and accelerated migration activities will be reported on our web site. Analysis of the volunteer training and education activities will be written up, submitted, and shared with volunteer group leaders. All results will be shared with colleagues including the Metro Conservation Corridors Partnership.

Status as of February 1, 2015:

The Pilot Knob grazing project was featured on MPR's Daily Circuit radio show, and webpage. A 30 person corporate event at Pilot Knob featured interpretation of the goat browsing project on the day they were removed from the site, as well as active fence removal. A presentation on conservation grazing projects including Pilot Knob Hill, will be made at the upcoming annual meeting of the Wild Ones, with an estimated attendance in the hundreds.

Status as of August 1, 2015:

A presentation on metro conservation grazing projects including Pilot Knob Hill, was made at the annual conference of the Minnesota Chapters of Wild Ones: Design With Nature, with an estimated 200 people in attendance including members and vendors. <http://www.designwithnatureconference.org/2011/10/wild-ones-2012-design-with-nature.html>. A summary of our spring volunteer events at Westwood Hills Nature Center and Carver Park were posted to Facebook and Twitter. Recruitment for our fall events has begun with emailing of a corporate recruitment packet and emails to almost 400 Volunteer Supervisors.

Status as of February 1, 2016:

Twenty-nine corporate volunteers participated in September restoration activities at Westwood Hills Nature Center, led by five Greening Volunteer Supervisors. These volunteers planted 350 spring ephemeral flowers and received a small group presentation on the value of the site and its restoration, as well as life strategies of spring ephemerals and their importance to pollinators. Placards with photos of the flowers in bloom were included.

Status as of August 1, 2016:

During spring 2016, 397 general volunteers and 40 trained volunteer supervisors were involved in Greening events and received small group presentations on ecological topics relevant to the site. Volunteers for the public Trout Brook event were recruited through Greening's Facebook page (over 1,300 likes), Twitter (over 500 followers), e-lists (about 6,500 people), flyers distributed locally, and contacts at organizations. Volunteers included members of the general public as well as 15 different participating groups, private corporations, schools, and non-profit organizations. The three private youth events at Trout Brook and one at Pilot Knob were featured in a Facebook photo album and one Facebook post.

Status as of February 1, 2017:

During fall 2016, volunteer events at Westwood Hills and at Trout Brook Nature Preserve were publicized via 9 emails to Greening's e-list (about 8,500 subscribers), Greening's Facebook page (over 1,400 likes), Twitter (nearly 600 followers), a community outreach event (PolliNATION Festival, Sept 11, 2016), and about 280 fliers distributed to community members. Fifteen supervisor packets were distributed to individual volunteer supervisors, providing those volunteers with information about the site, project history, and goals. Events at Westwood Hills and Trout Brook Nature Preserve involved 59 adult general volunteers, 53 youth volunteers, and 14 trained volunteer supervisors. Volunteers included members of the general public, a Boy Scout troop, a school group, a private corporation, and several non-profit organizations.

Final Report Summary:

Greening is in active partnership with landowners, other land managers, service providers, conservation peers, and volunteers resulting in a dynamic and timely exchange of information and results.

Volunteer event descriptions acknowledging Trust Fund contributions and qualitative results were emailed to Greening's e-subscribers in July 2014, February 2015, July 2015, spring 2016, fall 2016 and spring 2017 in advance of spring and fall volunteer event seasons; over the course of the grant, the number of subscribers increased from approximately 5,000 to over 8,500. Information about Metro Conservation Corridors is on the Great River Greening website at <https://www.greatrivergreening.org/category/mccorridor/>; over the course of the grant, visits to the website increased from 1,100 to over 1,500 visits per month. In addition, Greening's Facebook and Twitter pages have featured the Pilot Knob Grazing Monitoring project, the Accelerated Migration/ White Oak Ecotype Study at Central Corridor, Allemansratt Wilderness Park, Trout Brook, Westwood Hills, and Carver Park.

In March 2017, 150 attendees convened to attend *The Best Practices for Pollinators in the Real World Summit, for Minnesota Counties, Municipalities, Leaders*. During the conference, Washington County Parks presented on Innovative Management Approaches, highlighting the South Washington conservation haying project. In addition, five press articles from the Pioneer Press, Star Tribune, and Lillie News disseminated information about Pilot Knob Hill, publicizing its addition to the National Register of Historic Places and the prescribed grazing project:

1. Star Tribune, South metro briefs: "County Road 42 project delayed until next year" (05/07/2016) <http://www.startribune.com/south-metro-briefs-county-road-42-project-delayed-until-next-year/378502465/>
2. Lillie News, "The city's gone to the bees...and butterflies" (05/31/2016) <https://www.greatrivergreening.org/news/2016/2016-05%20LillyNews%20The%20city%E2%80%99s%20gone%20to%20the%20bees%20and%20butterflies.pdf.pdf>
3. Pioneer Press, "More than just a pretty view: Pilot Knob named to National Register of Historic Places" (03/30/2017) <http://www.twincities.com/2017/03/30/pilot-knob-named-to-national-register-of-historic-places/>
4. Lille News, "A recognition centuries in the making" (05/02/2017): <http://www.bulletin-news.com/articles/2017/05/02/recognition-centuries-making>
5. Star Tribune, "Pilot Knob in Dakota County is designated historic site" (06/09/2017) <http://www.startribune.com/pilot-knob-in-dakota-county-is-designated-historic-site/426058373/>

Greening posts to the following community calendars, including proper acknowledgement when possible:

- | | |
|--|--|
| 1. Minnesota Master Naturalist Blog | 16. SEEK |
| 2. Minnesota Master Naturalist Forum | 17. Volunteer Match |
| 3. Macalester | 18. WCCO Community Calendar |
| 4. St. Catherine University | 19. YourCause |
| 5. MN Master Naturalists | 20. Minnesota Monthly |
| 6. Gustavus GivePulse | 21. Hudson Community Guide and Calendar |
| 7. Minnesota State University - Mankato
(Community Request for Volunteers Form) | 22. Restore Minnesota |
| 8. Do It Green Minnesota | 23. Hamline University |
| 9. River wired (Green Hands USA) | 24. Augsburg College |
| 10. HandsOn Twin Cities | 25. AARP volunteers |
| 11. Idealist | 26. 1 Mississippi |
| 12. KARE 11 Community Calendar | 27. Northern Gardener |
| 13. KSTP Events | 28. MN River Basin Data Center |
| 14. Next Step | 29. Minnesota Tree Care Advocate Newsletter |
| 15. River Rangers | 30. Meetup Groups, six different outdoors and
environmental action groups |



Environment and Natural Resources Trust Fund (ENRTF) M.L. 2014 Work Plan Final Report

VI. PROJECT BUDGET SUMMARY:

A. ENRTF Budget Overview:

Budget Category	\$ Amount	Explanation
Personnel:	\$ 64,337	1 project manager/ecologist at 5.5% FTE for 3 years; 1 grant management assistant at 1.6% FTE for 3 years; 2 ecologists at 5% FTE each for 3 years; 1 director of conservation programs at 0.4% FTE for 3 years; 1 volunteer manager at 8% FTE for 3 years; 1 field coordinator at 9% FTE for 3 years; 3 restoration technicians at 7% FTE each for 3 years; 1 director of finance at 2% FTE for 3 years; 1 administrative assistant at 1% FTE for 3 years.
Professional/Technical/Service Contracts:	\$ 118,050	Restoration Service Providers; Vegetation and Invertebrate/Pollinator Monitoring Assistance. Providers TBD through competitive process.
Equipment/Tools/Supplies:	\$ 67,427	Seed, Plants, Herbicide, Hand Tools, Sanitation Protocol Equipment and Supplies
Capital Expenditures over \$5,000:	\$-0-	
Printing:	\$ 37	Trust Fund signs, reports, volunteer handouts, large maps, conference poster(s)
Travel Expenses in MN:	\$ 4,001	Truck, Personal Vehicle Mileage
Other:	\$ 3,825	Volunteer Event Expenses: Large tent/table/chair/portable toilet rentals; overnight security. Purchase of boot brushes and other invasive species sanitation protocol equipment; approved food and beverage; small pop-up tents; safety glasses, work gloves, hand tools.; Burn Permit Fees
TOTAL ENRTF BUDGET:	\$ 257,677	

Explanation of Use of Classified Staff: N/A

Explanation of Capital Expenditures Greater Than \$5,000: N/A

Number of Full-time Equivalents (FTE) Directly Funded with this ENRTF Appropriation: 2.57 FTE

Number of Full-time Equivalents (FTE) Estimated to Be Funded through Contracts with this ENRTF Appropriation: 2.33 FTE

B. Other Funds:

Source of Funds	\$ Amount Proposed	\$ Amount Spent	Use of Funds
Non-state			
City of Lilydale	\$ 500	\$ 500	Lilydale Bluffs
City of Lindstrom	\$ 27,000	\$ 14,000	Allemansratt Park I & II
City of Mahtomedi	\$ 40,000	\$ 30,000	Katherine Abbott II
City of Mendota Heights	\$ 8,600	\$ 8,600	Pilot Knob Grazing
City of St. Louis Park	\$ 30,000	\$ 20,000	Westwood Hills Nature Center
City of St. Paul	\$ 2,000	\$ 2,000	Trout Brook II
Dodge Nature Center	\$ 13,000	\$ 8,000	Dodge Nature Center II
South Washington Watershed District	\$ 11,000	\$ 11,000	Central Corridor Haying, Accelerated Migration
Three Rivers Park District	\$ 30,000	\$ 0	Upon further review, \$30,000 match funds were allocated to OHF instead
Union Pacific Railroad	\$ 7,500	\$ 3,500	Pilot Knob Hill
Foundations/Corporations/Grants	\$ 17,285	\$ 17,285	Trout Brook, Pilot Knob, Allemansratt, Westwood
State			
Outdoor Heritage Fund	\$ 189,419	\$ 189,419	Trout Brook II, Carver Park, Katherine Abbott II
TOTAL MATCH FUNDS:	\$ 376,304	\$ 304,304	

VII. PROJECT STRATEGY:

A. Project Partners: City of Lilydale, City of Lindstrom, City of Mahtomedi, City of Mendota Heights, City of St. Louis Park, City of St. Paul, Dodge Nature Center, South Washington Watershed District, Three Rivers Park District, Union Pacific Railroad.

B. Project Impact and Long-term Strategy:

Much of the remaining natural habitats within the Greater Twin Cities metropolitan area are threatened by conversion, fragmentation, invasive species, development, altered hydrology, and climate change. However, the implementation of restoration activities including managing invasive species, seeding/plugging, conducting prescribed burns, planting trees, and grazing and haying restored prairies with vegetation help restore/enhance remaining natural habitats. Restoration activities contribute to the long term outcome of improved water quality, protect rare native species, and reconnected habitat corridors. Opportunities to restore new sites and subsequent phases using innovative restoration/enhancement techniques will continue, covering additional acres/shoreline within the mapped Metro Conservation Corridors. Implementing these best natural resource management practices helps protect Minnesota’s natural heritage for future generations.

In addition, creating connections between community members and the restoration of outdoor spaces is key for safeguarding our natural treasures through time. By engaging volunteers in meaningful outdoor restoration activities on natural areas, community volunteers learn about the habitat restoration process and develop hands-on skills to become engaged and informed civic leaders. Hands-on training and education on how to replicate the restoration/enhancement activities at home or at other sites empower volunteers to continue to volunteer and/or initiate future ecological restoration in their communities. By educating and engaging volunteers today, Great River Greening is building community leaders of tomorrow – community leaders who will continue to restore/enhance habitat and shoreline in their own communities.

C. Spending History:

Funding Source	M.L. 2008 or FY09	M.L. 2009 or FY10	M.L. 2010 or FY11	M.L. 2011 or FY12-13	M.L. 2013 or FY14
ENRTF	\$111,000	\$155,000	\$-0-	\$400,000	\$208,000

VIII. ACQUISITION/RESTORATION LIST: See attached "GRG MetroHab14 Acquisition_Restoration List"

IX. VISUAL ELEMENT or MAP(S): See attached "GRG MetroHab14 Map"

X. ACQUISITION/RESTORATION REQUIREMENTS WORKSHEET:

XI. RESEARCH ADDENDUM: N/A

XII. REPORTING REQUIREMENTS: Periodic work plan status update reports will be submitted no later than February 15, 2015; August 15, 2015; February 15, 2016; August 15, 2016; February 15, 2017. A final report and associated products will be submitted between June 30 and August 15, 2017.

Final Attachment A: Budget Detail for M.L. 2014 Environment and Natural Resources Trust Fund Projects



Project Title: Upland and Shoreline Restoration in Greater Metropolitan Area
Legal Citation: M.L. 2014, Chapter 226, Section 2
Project Manager: Wiley Buck
Organization: Great River Greening
M.L. 2014 ENRTF Appropriation: \$300,000
Project Length and Completion Date: 3 Years, June 30, 2017
Date of Report: August 15, 2017

ENVIRONMENT AND NATURAL RESOURCES TRUST FUND BUDGET	Activity 1 Budget	Amount Spent 6/30/17	Activity 1 Balance	TOTAL BUDGET	TOTAL BALANCE
BUDGET ITEM	Restoration and Enhancement				
Personnel (Wages and Benefits)	\$80,000.00	\$64,336.81	\$15,663.19	\$80,000.00	\$15,663.19
Project Manager / Ecologist: \$11,000 (78% salary, 22% benefit); 5.5% FTE for 3 years.					
Grant Management Assistant: \$2,000 (80% salary, 20% benefit) 1.6% FTE for 3 years.					
2 Ecologists: \$20,000 (85% salary, 15% benefits); 5% FTE each for 3 years					
Director of Conservation Programs: \$1,000 (93% salary, 7% benefits); 0.4% FTE for 3 years.					
Volunteer Manager: \$10,000 (87% salary, 13% benefits); 8% FTE for 3 years.					
Field Coordinator: \$11,500 (86% salary, 14% benefits); 9% FTE for 3 years.					
3 Restoration Technicians: \$17,000 (93% salary, 7% benefits); 7% FTE each for 3 years					
Director of Finance: \$6,000 (81% salary, 19% benefits); 2% FTE for 3 years.					
Administrative Assistant: \$1,500 (86% salary, 14% benefits). 1% FTE for 3 years.					
Professional/Technical/Service Contracts					
Vegetation monitoring assistance for prescribed grazing/haying and accelerated migration, and invertebrate/pollinator monitoring assistance for prescribed grazing/haying. Providers TBD determined by competitive process.	\$20,000.00	\$20,000.00	\$0.00	\$20,000.00	\$0.00
Restoration/enhancement activities such as site preparation, seed installation, planting, watering. Providers TBD determined by competitive process.	\$30,000.00	\$30,000.00	\$0.00	\$30,000.00	\$0.00
Restoration/enhancement activities for shoreline such as erosion control, earthwork for shoreline restoration. Providers TBD determined by competitive process.	\$10,000.00	\$6,320.00	\$3,680.00	\$10,000.00	\$3,680.00
Restoration/enhancement activities such as invasive species control, mowing, prescribed burning. Providers TBD determined by competitive process.	\$55,000.00	\$55,000.00	\$0.00	\$55,000.00	\$0.00
Restoration/enhancement activities for prescribed grazing/haying such as haying, goat and horse fencing, livestock transport. Providers TBD determined by competitive process.	\$15,000.00	\$6,730.00	\$8,270.00	\$15,000.00	\$8,270.00
Equipment/Tools/Supplies					
Restoration tools and equipment: General use such as purchase/repair of power tools, sprayers, personal protective equipment; mower, ATV maintenance/repair; boot brushes and other invasive species sanitation protocol tools and equipment.	\$2,500.00	\$571.34	\$1,928.66	\$2,500.00	\$1,928.66
Restoration supplies for revegetation such as seeds, plants, mulch/tree mats, herbivore protection including deer fencing.	\$50,000.00	\$49,317.18	\$682.82	\$50,000.00	\$682.82
Restoration supplies for site preparation and invasive species control such as herbicide.	\$3,000.00	\$1,618.43	\$1,381.57	\$3,000.00	\$1,381.57
Restoration supplies for prescribed grazing / haying such as goat and horse fencing, fencing energizers, stock tanks.	\$5,000.00	\$4,188.32	\$811.68	\$5,000.00	\$811.68
Restoration supplies specific to shoreline projects, including ephemeral waterbodies, such as erosion control materials, anchors.	\$20,000.00	\$11,732.05	\$8,267.95	\$20,000.00	\$8,267.95
Printing Trust Fund signs, reports, volunteer handouts, large maps, posters.	\$500.00	\$37.07	\$462.93	\$500.00	\$462.93
Travel expenses in Minnesota Mileage	\$5,000.00	\$4,000.98	\$999.02	\$5,000.00	\$999.02
Other					
Volunteer Event Expenses: Large tent/table/chair/portable toilet rentals; overnight security. Purchase of: boot brushes and other invasive species sanitation protocol equipment; approved food and beverage; small pop-up tents; safety glasses, work gloves, hand tools.	\$3,800.00	\$3,800.00	\$0.00	\$3,800.00	\$0.00
Burn permit fees.	\$200.00	\$25.00	\$175.00	\$200.00	\$175.00
COLUMN TOTAL	\$300,000	\$257,677	\$42,323	\$300,000	\$42,323

Environment and Natural Resources Trust Fund
M.L. 2014 Acquisition/Restoration List

Project Title: Upland and Shoreline Restoration in Greater Metropolitan Area
Legal Citation: M.L. 2014, Chapter 226, Section 2
Project Manager: Wiley Buck
Organization: Great River Greening
M.L. 2014 ENRTF Appropriation: \$ 300,000
Project Length and Completion Date: 3 Years, June 30, 2017
Date of Report: August 15, 2017

#	Acquisition or Restoration Parcel Name	Geographic Coordinates Format: [Deg.]° [Min.]' [Sec.]" [Hemis.]		Actual Cost	Estimated Annual PILT Liabilities	County	Ecological Significance	Activity Description	# of Acres	# of Shoreline Miles	Type of Landowner	Proposed Fee Title or Easement Holder (if applicable)	Status
		Latitude	Longitude										
1	Katherine Abbott Park Phase II	45° 2' 36.95" N	-92° 57' 50.03" W	\$ 27,800	N/A	Washington	Site with mosaic of habitats	Wetland, forest and prairie enhancement	10	0.00	Public	N/A	Completed Trust Fund project; project ongoing with landowner funding
2	Carver Park Reserve	44° 52' 37.57" N	-93° 42' 10.07" W	\$ 25,957	N/A	Carver	Site with mosaic of habitats	Oak woodland enhancement	16	0.00	Public	N/A	Completed
3	Allemansratt Park Phases I, II, III	I) 45° 24' 5.05" N II) 45° 23' 58.72" N III) 45° 23' 58.72" N	I) -92° 50' 28.68" W II) -92° 50' 42.408" W III) -92° 50' 42.408" W	\$ 58,677	N/A	Chisago	High quality mosaic of forest and wetland	Forest enhancement, woody invasive removal, understory enhancement	23	0.00	Public	N/A	Phase I completed Phases II and III ongoing under ML2016 Trust Fund appropriation
4	Trout Brook Nature Preserve Phase II	I) 45° 24' 5.05" N II) 45° 23' 58.72" N	-93° 5' 31.92" W	\$ 11,378	N/A	Ramsey	Ecological corridor to connect Trout Brook Greenway and Mississippi River	Establishment of Phase I	2	0.00	Public	N/A	Completed
5	Lilydale Bluffs, Lilydale Regional Park	44° 54' 37.44" N	-93° 7' 32.50" W	\$ 738	N/A	Ramsey	Bluff habitat along Mississippi River	Management plan	0	0.00	Public	N/A	Ongoing under ML2016 Trust Fund appropriation
6	Central Corridor: Accelerated Migration Technique	44° 51' 45.72" N	-92° 54' 33.84" W	\$ 10,240	N/A	Washington	Innovative restoration technique with potentially wide application	Plant; collect/evaluate data on survival/growth of southern vs. local ecotype young white oaks	3	0.00	Public	N/A	Completed
7	Prescribed Grazing/Haying: a) Central Corridor b) Pilot Knob Hill	a) 44° 51' 45.72" N b) 44° 52' 49.45" N	a) -92° 54' 33.84" W b) -93° 9' 57.60" W	\$ 33,234	N/A	a) Washington b) Dakota	Implement state-of-the-art restoration techniques on underserved metro natural areas	Implement; collect/evaluate data on vegetation and invertebrates/pollinators	34	0.00	Public	N/A	Implementation and data collection complete; data analysis to be completed winter 2017-18 with other funding sources
8	Westwood Hills Nature Center Phases I and II	44.968601	-93.385902	\$ 32,252	N/A	Hennepin	160 acre mosaic including high quality oak, maple, basswood forest	Management plan and forest restoration	25	0.10	Public	N/A	Phase I completed. Phase II underway, primary funding and deliverables under ML2016 Trust Fund appropriation
9	Wolsfeld Woods SNA	45.001999	-93.568703	\$ 8,544	N/A	Hennepin	Large Big Woods remnant with lake and wetland	Forest restoration through invasive control, seeding/planting	11	0.50	Public	N/A	Completed
10	Dodge Nature Center Phase II	44.8773	-93.114799	\$ 19,025	N/A	Dakota	Large area with mosaic of forest, grassland, and wetland	Prairie seeding and establishment	8	0.00	Public	N/A	Completed Trust Fund project; project ongoing with landowner funding
11	Bur Oak Research: Central Corridor, Fish Creek Open Space, Allemansratt, Otter Lake	various, see 2015 appropriation	various, see 2015 appropriation	\$ 22,604	N/A	Chisago, Ramsey, Washington	various, see 2015 appropriation	Planting and researching three ecotypes of Bur Oak	3	0.00	Municipality, Watershed District, and County	N/A	Underway; primary funding and deliverables under ML2015 Trust Fund appropriation
12	Fish Creek Pollinator Raingardens	44° 53' 46.7952" N	-93° 0' 9.831" W	\$ 7,229	N/A	Ramsey	Prairie, savanna, woodland habitat	Pollinator-friendly plugging and monitoring pollinators, vegetation	0.5	0.00	Municipality and County	N/A	Underway; primary funding and deliverables under ML2015 Trust Fund appropriation

NOTE: Trout Brook Nature Preserve aka Trillium Nature Preserve

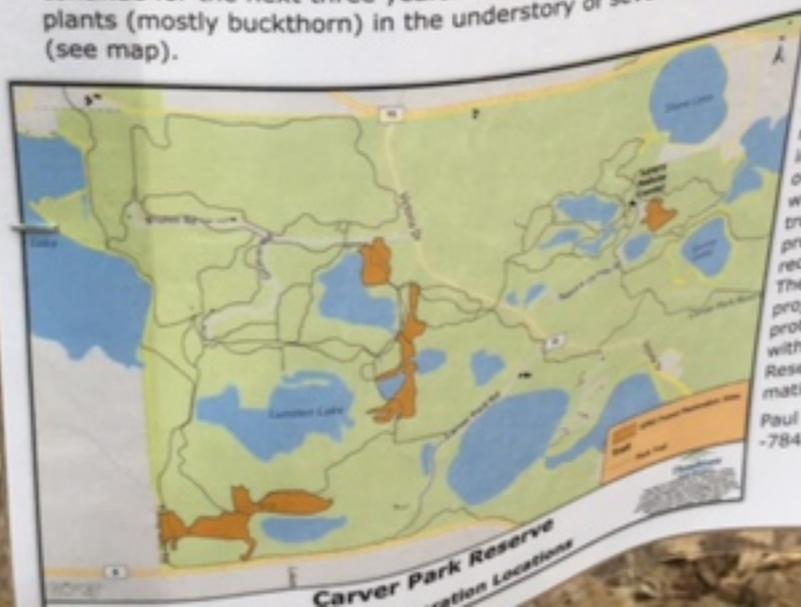






Carver Forest Management

Starting winter 2015 Three Rivers Park District, in coordination with Great River Greening, will be performing forest management activities within the park. This project is grant funded and will continue for the next three years. Contracted crews will be cutting and removing non-native plants (mostly buckthorn) in the understory of several oak-dominated woodlots within the park (see map).



Crews will be using both mechanical, including skid steer equipment, and chemical control methods on the site. The goal is to re-establish a fire regime in these stands by the end of the grant period, which will not only help us control invasives, but will also promote native species recruitment in the stand. The ultimate goal of this project is to promote and protect the native forest within Carver Park Reserve. For more information contact

Paul Kortebein at 763-694-7843



Maplewood 

Fish Creek Natural Area

This conservation area is for exploring nature.
Please help protect it.

- Hours 5:00am - 10:00pm
- No motorized vehicles permitted
- No camping or campfires
- Pets must be on leash
- Share the trail
 - Give pedestrians right-of-way
 - Bicycles permitted on asphalt trail
 - No off trail biking





A man wearing a white long-sleeved shirt, khaki pants, and a brown baseball cap, standing on the left side of the brush pile.

A young child wearing a blue long-sleeved shirt and blue jeans, standing in the middle of the brush pile.

A person wearing a black t-shirt and black pants, standing in the middle of the brush pile.

A woman wearing a light blue t-shirt, a pink baseball cap, and a grey jacket draped over her shoulders, standing on the right side of the brush pile.

A woman wearing a teal tank top and black pants, standing on the right side of the brush pile.

A man wearing a grey t-shirt with the text "TAKE CHARGE OF LEARNING" on the back, blue jeans, and sunglasses, standing on the right side of the brush pile.



















