



Restoration Supervisor

Volunteer Manual

City of Saint Paul
Department of Parks and Recreation
Environmental Services

Table of Contents

Section 1: Parks and Recreation Overview.....2

Section 2: Restoration Supervisor Vision.....3-5

Section 3: Event Day Schedule & Procedure.....5-10

Section 4: Safety & Techniques.....10-15

Appendix A: Site Histories

Appendix B: Conservation Projects and Grants

Appendix C: Resource List

Section 1: Saint Paul Parks and Recreation - Overview

About Saint Paul Parks and Recreation

The Saint Paul Parks and Recreation Department is committed to helping make Saint Paul the most livable city in America with great services and programs. Saint Paul Parks and Recreation features more than 170 parks and open spaces, Como Zoo, Marjorie McNeely Conservatory, 25 City operated Recreation Centers, one 9-hole and three 18-hole golf courses, more than 100 miles of trails, indoor and outdoor aquatic facilities, a public beach, sports facilities and wonderful rental facilities for weddings, picnics, and corporate events.

Mission

To help make Saint Paul the most livable city in America, Saint Paul Parks and Recreation will facilitate the creation of active lifestyles, vibrant places, and a vital environment.

Vision Statement

Saint Paul Parks and Recreation will make Saint Paul the most livable city in America by: Responding creatively to change, Innovating with every decision, Connecting the entire city.

Commitment Statement: Our Promise To You

The staff of Saint Paul Parks and Recreation promises to cheerfully and respectfully serve you. We will provide access to quality programs at clean and safe facilities with timely and effective service. We will listen to your suggestions and concerns and respond to the best of our abilities.

About Environmental Services

The City of Saint Paul is committed to protecting, enhancing, and providing access to the city's natural resources. The Environmental Services section coordinates environmental volunteer events, conducts monitoring and research of natural resources in parks, restores and manages vital and unique ecosystems, and provides interpretation and education to the public. In partnership with non-profit, county, state, and national agencies, we coordinate efforts to restore and improve the natural environment in Saint Paul.

Section 2: Restoration Supervisor Vision

A successful Parks' Volunteer Program...

- fosters community and civic participation
- enriches Parks' programming
- encourages stewardship of local parks and natural areas
- allows staff to focus on projects that require specialized skills
- teaches youth and adults about the wealth of natural wonders in the City's park system
- builds awareness and support for the efforts of Saint Paul Parks and Recreation
- allows the Department to accomplish projects that require large numbers of people

Restoration Supervisor Position

Goal/Purpose of Position

Restoration Supervisors work closely with staff to help improve and maintain areas of high ecological significance in Saint Paul. Restoration Supervisors assist with supervising volunteers during large habitat restoration events. They may also lead small volunteer events in the absence of staff.

Major Responsibilities

- Assist with supervising volunteers during large habitat restoration events (50-150+ volunteers)
- Supervise, motivate and lead groups of up to 15 volunteers during large events
- Demonstrate and teach proper restoration techniques and basic principles of habitat restoration
- Assist staff with overall event management including set-up, registration, and troubleshooting
- Lead small habitat restoration events (10-20 volunteers) in the absence of staff

Impact

Restoration Supervisors directly contribute to restoring and protecting Saint Paul's natural areas for future generations. They inspire others to become stewards of the environment. Additionally, they increase Saint Paul Parks' capacity to engage the public in actively restoring and protecting our natural resources.

Benefits to the Volunteer

- Increase knowledge in habitat restoration, plant identification, and Saint Paul's natural history
- Meet and work with people from partner organizations like the National Park

- Service, REI, and Conservation Corps of Minnesota.
- Develop leadership skills and gain experience working with diverse communities
 - Personal enrichment and experience working with Saint Paul Parks' Natural Resources staff
 - Attend occasional recreational and/or educational events hosted by SPPR or our project partner organizations

Qualifications

- Physically mobile and able to perform manual work—light to moderate difficulty
- Experience in and enthusiasm for the outdoors and conservation
- Ability to work independently with minimal supervision
- Enjoy leading groups and working with diverse communities
- *Preferred: some field experience with habitat restoration and/or knowledge of native and invasive plant species*

Special Requirements

- Must be 18 years of age or older
- Must carry personal mobile phone while volunteering
- Must complete new Restoration Supervisor volunteer orientation

Forms

Volunteers are required to review, sign and return the following forms:

- Consent and liability waiver
- Volunteer Agreement

Submitting Hours

Restoration Supervisors sign up for volunteer opportunities on the Restoration Supervisor calendar on VicNet. The Volunteer Coordinator collects hours logged from here. *Every reportable hour of volunteer time we can log and report helps the City obtain funding to maintain and improve our parks and natural area and helps us continue to evaluate and improve the volunteer program.*

Commitment

Commitment is for one calendar year. As of January 1, 2015, to remain active Restoration Supervisor volunteers will be required to attend 10 events throughout the year.

- Eight (8) events should be Saint Paul Natural Resources volunteer events. Two (2) should be educational or professional development opportunities. We ask Restoration Supervisors to either A) write a blog post about the event for the Restore Saint Paul blog, or B) prepare a brief 3-5 minute presentation for fellow volunteers, to share what you learned. If you

intend to write a blog, please read through our blog post expectations.

Training

If accepted into position, volunteer must attend the spring orientation. The orientation includes introduction to Saint Paul Parks, best practices in volunteer event supervision, and restoration techniques that will be used throughout the year. And while we're at it, some fun will be had.

- 2015 Orientation will take place on Wednesday, April 1, 2015, @ 5-7:30 in the Merriam Park Library meeting room (1831 Marshall Ave).

Ongoing professional development opportunities for volunteers will be offered or recommended throughout the year.

Locations

Most habitat restoration sites are in Saint Paul's Regional Parks, including the 17 miles of parkland along the Mississippi River.

Supervisor

On-site supervisor is the Environmental Services staff. Overall volunteer program supervisor is the Volunteer Coordinator. Volunteers contact on-site supervisor for questions pertaining to the on-site/field work, and contact the Volunteer Coordinator for questions regarding their volunteering (schedule, forms, etc.).

Section 3: Event Day Schedule & Procedure

Typical Volunteer Event Day Schedule and Procedure

The information provided in this section will help you prepare for a typical event day and understand the elements that go into managing a successful volunteer event. Prior to each event, Environmental Services staff will provide you with specific information about the **event itself, the location, and the time to arrive.**

Set Up

Staff typically arrives 60-90 minutes prior to the event to begin staging activities. They will bring all tools needed for the event, any signage needed, water jugs, cups, first aid kits, safety vests for staff, and any other necessary equipment for the particular event. Set up begins by designating a staging area where the meet and greet will occur and where volunteers can use restroom facilities and get water. At this site, all tools and gloves should be laid out in an orderly fashion to make them easily accessible to volunteers. All tools used for the event will be accounted for at the beginning and at the end of the event so that none get misplaced or lost.

At large volunteer events, work sites will be segmented to create smaller working areas for volunteer groups. These work sites will be clearly signed and a staff member or Restoration Supervisor will be assigned to each work site. Approximately 20-30 minutes before the event starts, all staff, Restoration Supervisors, and partner organization staff will meet to review the details of how the event will be carried out.

Work Time

Once all volunteers arrive, Environmental Services staff will do an **event kickoff** that includes a **brief site history, explanation of what the Natural Resources unit does, and an explanation of what activities volunteers will be asked to do**. After the kickoff, volunteers will usually be split up into smaller groups and then sent to one of the signed work units.

At the work unit, the Restoration Supervisor or staff assigned to that unit will introduce him/her self and further explain and demonstrate what the volunteers will be doing. Once volunteers begin working, it is the responsibility of the Restoration Supervisor or staff member at the work unit to ensure that 1) tools are being used correctly and safely, 2) that all necessary measures are taken to ensure the safety of everyone at the unit, that 3) volunteers follow the instructions provided by Parks staff correctly, and that 4) volunteers remain engaged and motivated.

It is strongly urged that Restoration Supervisors and staff do not actively participate in the restoration activities at these events, but that they focus on supervising volunteers to guarantee that all four above mentioned goals are met.

Work Time Safety

One of the primary safety aspects to consider while supervising volunteers is the health and well being of the volunteer. It is important to constantly remind volunteers to break often for rest and drink plenty of water. During these events weather can be harsh whether it's incredibly hot and muggy or pouring rain. Volunteers need to be reminded to consider their health first and not push themselves too hard.

Event Wrap Up

As the event winds down it is important to gather work site crews or gather the entire volunteer group and do a brief wrap-up. Often this will be done with all the volunteers and Environmental Services staff will give the wrap-up, reiterating the importance of the activities performed at the site and how appreciative Environmental Services is of volunteer aid.

After the Event

At the end of the event, all the tools and equipment should be accounted for. These

should be brought back to the Como Shop and put away in their appropriate location. Restoration Supervisors should, again, go through the before and after event day checklist provided in this manual.

Attire

Attire is an important aspect in environmental management work. Appropriate attire includes work gloves, safety vest, sturdy shoes and long-sleeved shirts and pants to prevent injury from sharp objects, brush, insect stings, sunburn and poison ivy. Light colored clothing is most visible. Wear sun screen in the summer. Use eye protection when necessary. The primary purpose of this type of clothing is to protect the staff member or volunteer. In the next section, plants and insects that cause a potential hazard are discussed.

In order to maintain a professional appearance and provide personal safety, the following dress code guidelines apply:

- Clothing should not have excessive rips, tears or holes in them.
- No bare midriffs.
- No short shorts, low-riding pants and/or underwear on display.
- Tattoos with offensive words or graphics must be covered.
- Clothing and jewelry cannot have any reference to alcohol, sex, drugs, tobacco, gangs or violence.
- Clothing or jewelry with racist, sexist, offensive wording or graphics is prohibited.
- Closed-toe footwear must be worn at all times and should be appropriate for the activity.

Event Day Checklist:

Before

- Environmental Services staff will provide information about the event day, event location, site history, and restoration activities that will be performed via e-mail 1-3 days in advance
- Visit the site (optional)

Event Day

Before Event:

- Arrive 30 minutes (sometimes 60 minutes) before the event begins
- Prepare site, signs, and lay out equipment
- Perform tool count

During Event:

- Meet and greet at the event kickoff location
- Kickoff/Group Introduction
- Separate into work teams and walk over to work unit (staff or Restoration Supervisor assigned to particular work unit should lead work team to site)
- Give brief work unit intro and the day's activities
- Review safety rules with your volunteers
- Make sure all volunteers are appropriately dressed and using the appropriate safety equipment
- Train all participants in the correct use of tools, if applicable.
- Recommended minimum ratios for working with youth:
 - Senior High: one adult to seventeen youth
 - Junior High: one adult to fourteen youth
 - 4th - 6th graders: one adult to 10 youth(These ratios may vary depending on the type of restoration activity)
- During work time, staff or Restoration Supervisors should supervise volunteers to make sure assignments are performed correctly, all necessary safety precautions are being performed, and that the volunteers are breaking often for water
- Near the end of the work time, stop work to gather all volunteers at the work unit and begin a wrap-up, including a reflection that highlights the significance of work the volunteers did and the importance of volunteer time
- Collect all tools and equipment and perform a tool count (it is preferable to have someone do this before volunteers leave the site so that if any tools are missing everyone can go back to work unit and recover the missing tools)

Typical Restoration Activities Calendar

Month	General Activities
January	<ul style="list-style-type: none"> • brush hauling • wildlife structure maintenance
February	<ul style="list-style-type: none"> • brush hauling • wildlife structure maintenance
March	<ul style="list-style-type: none"> • frost seeding • brush hauling • wildlife structure maintenance
April	<ul style="list-style-type: none"> • garlic mustard removal • prescribed burn season • spring planting (bareroot) • litter pickup • frost seeding • brush hauling • wildlife structure maintenance
May	<ul style="list-style-type: none"> • herbaceous plug planting • garlic mustard removal • prescribed burn season • spring planting (bareroot) • litter pickup • brush hauling • wildlife structure maintenance
June	<ul style="list-style-type: none"> • Prairie maintenance • Seed collection and propagation • Wildlife survey (wood duck box survey) • Reed canary grass, purple loosestrife • Wetland and riparian maintenance • brush hauling • wildlife structure maintenance
July	<ul style="list-style-type: none"> • Prairie maintenance (burdock, Canada thistle, sweet clover) • Seed collection and propagation • Wildlife survey (wood duck box survey) • Reed canary grass, purple loosestrife • Wetland and riparian maintenance • brush hauling • wildlife structure maintenance
August	<ul style="list-style-type: none"> • brush hauling • wildlife structure maintenance • Prairie maintenance (burdock, Canada thistle, sweet clover) • Woody invasive/buckthorn busting • Seed collection and propagation • Wildlife survey (wood duck box survey) • Reed canary grass, purple loosestrife • Wetland and riparian maintenance
September	<ul style="list-style-type: none"> • Fall seeding and planting season • prescribed burn season

	<ul style="list-style-type: none"> • Acorn collection • Seed collection and propagation • Wetland and riparian maintenance • Woody invasive/buckthorn busting • Prairie maintenance (burdock, Canada thistle, sweet clover) • brush hauling • wildlife structure maintenance
October	<ul style="list-style-type: none"> • Fall seeding and planting season • prescribed burn season • Acorn collection • Woody invasive/buckthorn busting • brush hauling • wildlife structure maintenance
November	<ul style="list-style-type: none"> • brush hauling • wildlife structure maintenance
December	<ul style="list-style-type: none"> • brush hauling • wildlife structure maintenance

Staff contact information:

Volunteer Coordinator

Ryanna Jackson

Office: 651-632-2411

Cell: 612-760-2239

E-mail: ryanna.jackson@stpaul.gov

For questions about field activities and Environmental Services call:

Natural Resources Technician – Shannon Montante, 651-248-4919

Environmental Coordinator - Adam Robbins, 651-248-5708

Section 4: Safety & Techniques

Safety

Park Security:

Cell 651-248-1732

Saint Paul Police Non-Emergency:

651-291-1111

Animal Control:

Office 657-266-1100

Weather

Events will rarely be canceled due to weather conditions, unless severe weather conditions occur. When possible, the Volunteer Coordinator will inform volunteers/participants of impending severe weather conditions. If a severe thunderstorm or tornado warning is in effect, go to the nearest building and stay away from glass and windows (do not go beneath tall trees or other objects). The personal safety and well being of volunteers/visitors/participants is their own responsibility. Parks' open spaces are used at the participant's own risk.

Dressing appropriately and wearing appropriate protection from the elements is critical. When working in high temperatures and sun, it is important to protect skin from being burned by covering up with hats and clothing, but most importantly by using strong sun-block. Drinking water and resting when needed is also important to prevent heat exhaustion. In rainy weather, it is important to wear adequate rain gear.

Plants

Some plants have the capacity to cause rashes and skin irritation. Two plants in particular that are present in the field are poison ivy and wild parsnip. Poison ivy contains a skin irritant called urushiol and when it comes in contact with skin it causes urushiol-induced contact dermatitis. Degree of irritation depends on the severity of each person's allergies to the irritant. Wild parsnip contains a substance called psoralen which causes phytophotodermatitis. This condition occurs when plant liquid comes in contact with exposed skin and sunlight, reacting and causing rashes and in severe cases blisters.

"Prohibited Noxious Weeds." *Welcome to the Minnesota Department of Agriculture*. Web. 13 Jan. 2011. <<http://www.mda.state.mn.us/plants/badplants/noxiouslist.aspx>>.

Insects

Wasps, bees, hornets, and mosquitoes are all insects present in the field. Under normal circumstances the most harm they cause is nuisance stings. If someone who is allergic is stung in the field, depending on their severity of allergy to the insect, they may need to be taken to the hospital. This is highly dependent on the specific situation and the severity of the allergy.

Ticks are also insects that are commonly present in the field. There are many kinds of ticks, most of which cause no real damage to their host other than being difficult to remove. The only tick that can cause potential damage is the black-legged tick (deer tick) which is significantly smaller than other ticks and can carry Lyme disease. Lyme disease is not usually life threatening but may cause a mild illness similar to a flu with potential long term problems involving the heart, joints and nervous system. A common indication that a host has contracted Lyme's disease is the development of a large circular rash usually around or near where the tick has bitten, although this is not always the case. This rash may develop in 3 to 32 days after the tick has bitten. If you are bitten and suspect that you may have contracted Lyme's disease, see your physician.

To reduce the potential for tick bites:

- Wear pants tucked into boots and or socks and wear long sleeved shirts with tight bands on the wrists.
- Use tick repellents containing 0.5% permethrin or mosquito repellents containing 30% DEET.
- Always examine clothing and skin for ticks after being in the field

"DNR - Lyme Disease." *SOM - State of Michigan*. Web. 13 Jan. 2011.
<http://www.michigan.gov/dnr/0,1607,7-153-10370_12150_12220-26945--,00.html>.

Extra Safety Information

Be aware of your surroundings to ensure your safety and the safety of others. Be especially careful if you are using tools.

Do not wear headsets or engage in horseplay or other conduct which would divert your attention from your work or impair your ability to perceive hazards from traffic or other dangerous situations. If working in a street right-of-way, you **MUST** wear a safety vest.

Avoid areas where hazardous conditions exist, such as: parking lots, bridges, construction sites, open water, and areas where mowing, tree trimming or pest control is in progress.

If you are picking up litter, use caution in handling collected items. TIP: When working with youth, have children raise their hand if they come across potentially dangerous items -

adults/leaders use judgment before picking up. Do not crush collected items; broken or jagged objects could cause injury. Keep aerosol cans at arms length, upside down, and away from your eyes. If you encounter potentially bio-hazardous materials, such as needles, syringes or condoms, ask Environmental Services staff for assistance. Do not try to pick up heavy, large or hazardous materials. Notify Environmental Services staff for removal of these materials.

Tools & Uses

The tools used for volunteer events are dependent on the project. Basic tools and equipment that are always available are gloves and water coolers. The primary tools that will be used during specific volunteer events are listed below:

- Planting: trowels (small shovels for planting), shovels, buckets
- Removal: pruners (small handheld pruner for trimming herbaceous plants) , loppers (large pruner for branches)
- Mulching: pitchforks, shovels, brooms, buckets, wheelbarrows
- Brush hauling and piles: rope, loppers, protective eyewear
- Seed collection: paper bags, buckets, identification materials
- Seed sowing: seed
- Prescribed burning: water packs, protective eyewear, specialized personal protective equipment

Tools are expensive and are highly integral to field work so it is of the utmost importance that all tools are always accounted for at the end an event and that they are properly cleaned and maintained to ensure their longevity.

In terms of safety, some of these tools are very sharp and should be used with caution. It is important that the Restoration Supervisor watches volunteers closely to make sure that the tools are being used appropriately. Some examples of tool misuse are; dragging tools rather than carrying them (shovels, pitchforks, etc), playing games with the tools, throwing or tossing tools, and using tools for anything other than their intended use.

Planting & Removal Techniques

Planting involves considerations for plant placement, planting site preparation, and plant material handling. Spacing of the plant material is project-specific and you will be instructed on proper placement by Environmental Services staff prior to the start of an event. Planting techniques vary depending on the specific plant material you are installing. In general, you will dig a hole a minimum of two times the diameter of the root ball, and just deep enough to plant the transplant at the soil level. Once the

planting hole is prepared, carefully remove the plant from its container insuring that the vegetative growth is not damaged. After the plant is removed from the container, check the roots. If they are tightly wound, softly tease them with your fingers to break up the root matrix to prevent the plant from becoming root bound (when the plant's roots have no additional room to grow and begin to grow in circles around itself ultimately causing the plant to die) and to encourage new growth. If roots are large and densely packed, they may be scoured with a knife. Environmental Services staff will inform you prior to the start of the event if this will be required. If root scoring is required, only the Restoration Supervisor should perform this activity – you will be provided an extremely sharp utility knife to perform this activity.

When placing the plant, make sure that the top of root ball is level to, or just slightly above, ground level. Planting too deep can suffocate the roots, and planting too shallow allows roots to dry out. Once level, replace 2/3rds of the removed soil and lightly press the soil around the root ball. At planting events where watering is a step in the process, watering the plants at this point eliminates air pockets in the soil and gives the plant a healthy drink of water. Once the water has soaked into the soil and the root ball appears moist, replace the remaining 1/3 of the soil, mulch (if required), and water again.

Mulching involves placing wood chips or another protective cover on the ground to reduce water evaporation, increase soil moisture, and to prevent weed seed germination around an establishing plant. Mulching is a laborious task and sometimes will be the sole project at a volunteer event.

Mechanical removal involves physically removing weeds through cutting, mowing, digging, or hand-pulling plants. Volunteer events will primarily focus on hand pulling and in some circumstances will involve removal of invasive shrubs using weed wrenches.

Brush Hauling & Brush Piles

Brush hauling usually involves hauling cut invasive trees and shrubs from a site. Some common shrubs and trees that are removed are buckthorn, honeysuckle, black locust, and box elder. These are cut and treated with chemicals at least 48 hours prior to the event to prevent re-sprouting. When brush hauling is a component of a volunteer event volunteers are simply asked to carry out only brush that has clearly been cut (do not remove old fallen branches). The most crucial aspect of hauling is safety. Volunteers should wear gloves and protective eyewear (provided by Environmental Services) to prevent any potential damage from branches the volunteers are hauling off the site.

Brush Pile type is dependent upon the fate of the brush. If the pile is going to be burned at a later date, then the volunteers should stack the brush as compact as possible, eliminating air pockets in the pile, while maintaining as small a footprint as possible. The best piles are small (ten-foot diameter), but tall. Burn piles are easily compacted by stacking a layer of smaller, wispy material, alternated with larger, heavier material to squish it down. Continuing to alternate the brush in this fashion produces a compact pile, ready to burn. If the pile will be picked up by a clam truck and hauled away from the site, then it must be piled on level ground in a location where no obstructions (overhanging trees, lights, signs, or buildings) will impede the egress of the truck. The piles must be as tall as possible, with a small footprint, while being neat. To make the piles easy for removal, it is preferable that all branches in the pile are lined up with freshly cut ends all facing the same direction and in line with one another.

Seed Collection & Sowing

Seed collection requires volunteers to walk a site and collect seeds from specific plants. These seeds are collected and then sown at a later date.

Seed sowing is the broadcast spreading of seeds at a site rather than drilling or scratching them into the soil.

Prescribed Burning

Prescribed burning uses fire to control invasive plant populations, blackens the ground (which then absorbs the sun's radiant energy and heats up the soil to encourage warm-season plant growth), and returns nutrients to the soil (fertilization). This activity is primarily employed by city staff, but may provide an advanced training opportunity for Restoration Supervisors.

Appendix A

Site Histories

Bruce Vento Nature Sanctuary

Bruce Vento Nature Sanctuary is located east of downtown Saint Paul, near the Mounds Park exit off I-94. The 27 acres of land were purchased through a broad partnership, and became a Saint Paul Park in 2005. An additional 1.85 acres of adjacent industrial land were purchased and added to the park in 2008.

Once a floodplain where Phalen Creek and Trout Brook flowed together into the Mississippi River, the land was used and valued by Native Americans for thousands of years. The site is home to Wakann Tipi (Spirit House), a Dakota sacred site commonly known as Carver's Cave. The North Star Brewery was built into the bluff in 1853 and later became Jacob Schmidt's first brewery. In the 1880s the land was claimed for industrial use and became a busy rail yard. Abandoned in the 1970s, the site was later declared a superfund site due to asbestos pollution from the rail yard.

Restoration/Conservation Overview: Bruce Vento Nature Sanctuary at lower Phalen Creek focuses on establishing connectivity with adjacent open space such as Trout Brook Greenway, Swede Hollow Park, and Pigs Eye Greenscape as well as creating much needed habitat.

Three small ponds attract waterfowl and the uplands are home to grasslands bird species. Turkey vultures, bald eagles, and red tail hawks soar along the sandstone bluffs and perch in snags. A spring-fed stream runs through the property. Wakann Tipi (Carver's Cave) is barricaded and not accessible, although the entrance is visible across a pond. Signage near the parking lot helps interpret the site.

Cherokee Regional Park

Cherokee Regional Park was acquired between 1903 and 1914 through donations from notable residents such as James J Hill. The park was known as Cherokee Heights Tourist Camp from 1920 until 1924, when it took its present form.

Restoration/Conservation Overview: The restoration of the site follows the restoration and management plan of the West Side Bluff. The primary ecosystem to be restored at this site is a dry oak forest, maple-basswood forest, dry prairie/savanna, and a remnant prairie.

Como Regional Park

In 1873 the City of Saint Paul acquired 300 acres of land around Como Lake that would become the 384 acre Como Regional Park located north of I-94 and west of Lexington Parkway.

Before European settlement, Como Park consisted of an oak savanna with prairie grasses, wet prairies, gentle hills, low swampy areas, and a shallow lake or two. The Mdewakanton Dakota made their way through this area between the park and the fairgrounds from their home in the south. In 1848 it was named Como Lake by local farmer Charles Perry. Because the Como Lake watershed became highly developed and urbanized, a great deal of damage was done to the shoreline as well as the remaining woodland areas. This damage includes the introduction of invasive species, removal of native species, erosion, riprap placement along the lakeshore, and the planting of turf grass up to shoreline. The park features a variety of attractions, including the Como Park Zoo and Conservatory. A pavilion sits on the west side of the lake and hosts theatrical performances and concerts during the warmer months.

Restoration/Conservation Overview: In 2000, the Capitol Region Watershed District adopted a watershed management plan in order to better manage water related issues and restoration projects in Como Park. The Como shoreline has undergone significant restoration, removing turf and riprap and replacing it with native vegetation. The shoreline restoration has decreased the amount of invasive vegetation, decreased polluted runoff from reaching the lake, decreased invasive wildlife such as geese, increased native vegetation and wildlife, and decreased excessive algae blooms. Restoration attempts have also been made in the woodland areas of Como Park in order to restore the original oak savanna.

Como Woodland Outdoor Classroom

The Como Woodland Outdoor Classroom project (CWOC) site is a 17.75-acre woodland located in the southwest area of Como Regional Park (between Como and Horton Avenues just east of Hamline Avenue) in Saint Paul, Minnesota.

In 2006, an idea for restoring a little wooded corner of Como Park and opening it up for educational purposes slowly took shape in the minds of a small group of local volunteers. Restoration of the woodland site and the historic features found within its boundaries resulted in the creation of the Como Woodland Outdoor Classroom. This outdoor classroom provides environmental education and historical interpretation for school children and adults, habitat for native wildlife, and an urban woodland oasis for the inner-city community where local place-based, hands-on environmental learning opportunities are rare. The CWOC site also provides recreational and educational opportunities to local residents and the many annual visitors to greater Como Regional Park.

Crosby Farm Regional Park

At 549 acres, Crosby Farm is the largest natural park in the City of Saint Paul. Running along the Mississippi River corridor, the site consists of lowland floodplain forests, steep wooded bluffs, wetlands, two small lakes, and the river shoreline. The lowland forests, which do flood, are populated by species of elm, ash, cottonwood, box elder, silver maple, willow, aspen and hackberry; site highlands (including the wooded slopes) consist of mostly oak forest, and some prairie patches.

In 1858, English immigrant Thomas Crosby acquired 160 acres for farming and agricultural development. Animals, including cattle, dairy cows, pigs, horses and chickens, used the lower plains (cleared by prior logging) as grazing land, while drier areas were used to grow apples, potatoes and other crops. The area was continuously farmed until 1962, when the City took ownership of the land and began managing it as a city park. Restoration and reforestation of the floodplains began in 1970, as most of the remaining old growth trees succumbed to diseases (though a few old cottonwoods remain). The park currently contains 6.7 miles of paved trail, by which it connects to Fort Snelling State Park, Hidden Falls Regional Park and other nearby parks.

Restoration/Conservation Overview: Today the park is covered by wetlands and various forests. It is a stopping point for various migrating birds such as songbirds and waterfowl, and is part of the Mississippi River Flyway. It is also a storm water catch point, buffering storm water from surrounding neighborhoods as it travels into the Mississippi River. This park is a popular recreation site for hiking, fishing, running, biking, dog walking, bird watching, picnics, cross-country skiing, and wildflower viewing. There are concerns about erosion on the bluffs.

Hidden Falls Regional Park

Selected in 1887 by Horace W.S. Cleveland, landscape architect and park designer, as one of the four major parks in the Saint Paul system, Hidden Falls served in part as a tree nursery until 1937. The site, which was developed in 1937 by the WPA (Works Progress Administration), contains four zones: the primitive area, a boat launching area, the picnic area, and the scenic falls area. The park, which contains 6.7 miles of trail, connects to Crosby Farm Regional Park. Hidden Falls Regional Park is 134 acres.

Highwood Nature Preserve

Survey notes from the mid-1800s indicate that this stretch of the Mississippi River Valley was a mosaic of big woods (elm, basswood, and sugar maple), oak openings and barrens, wet prairies and marshes and river bottom forest. The area in the Highwood Preserve was most likely oak savanna, oak woodland-brush land, and oak forest. By 1940 a farm had established on the site. The land was used for cultivation and grazing. Around 1987 the site began to see a great deal of change. New homes were built on the site while tree canopy significantly increased.

Restoration/Conservation Overview: Through 1999 to 2000, soil surveys were performed and the land was assessed. Currently the site is a public open space; the original buildings have been removed and restoration processes are ongoing. Highwood Nature Preserve now boasts a beautiful tall grass prairie including a small remnant portion. The park is also home to a few colonies of purple twayblade, a rare woodland orchid.

Indian Mounds Regional Park

Located east of downtown Saint Paul off I-94, Indian Mounds Regional Park is 17 acres including dramatic scenic views of downtown Saint Paul.

Approximately 2,000 years ago, members of the Hopewell Native American culture built a series of mounds in and around the area that is now Indian Mounds Regional Park. Of the original 16 mounds on the bluff, six remain (none of the original 199 on the lower bluff remain). Many of the mounds were excavated in the mid-1800s, by D.A. Robertson and T.H. Lewis for the Minnesota Historical Society. Many mounds held simple burials, containing the remains, mussel shells, and projectile points. The mounds also included bundles added by later generations. Some of the mounds had log tombs, or pit burials (showing higher status). In two of the mounds, more complex burials, including stone cists holding remains, shells, bear teeth, copper, and projectile points, were found. One burial included a clay mask, removed in tact during excavation, whose interior is a mold of the deceased's face.

Originally, the bluffs along the northern side of the river supported a dry prairie of bedrock bluff subtype and oak savanna plant communities. Bedrock bluff subtype occurs on steep bluffs facing south and/or west. Dry prairie relies on cyclic burning to maintain community composition. Due to European suppression of burning, the diversity and quality of these prairies has been severely compromised. As a result it has undergone succession into a woodland community.

Restoration/Conservation Overview: In 2001, the City of Saint Paul Division of Parks and Recreation received a U.S. Department of Agriculture grant in order to fund improvements of viewing areas of the Mississippi River. Great River Greening, a non-profit partner of Saint Paul Parks and Recreation, was contacted to form a planting strategy for Mounds' east and west overlooks that includes native plantings, erosion control, and increases scenic viewing areas. This plan was approved in 2002. The plantings include dry prairie grasses which can withstand prolonged drought, have minimal maintenance, reduce erosion, represent historical plantings, increase animal diversity, and maintain views of the river.

Environmental Services restored the triangle prairies and a remnant prairie located in

Indian Mounds Regional Park. Environmental Services still manages these sites to ensure the establishment of the native plantings through regular burns, non-native plant removal, and native plant introduction.

Lilydale Regional Park

Lilydale Regional Park is located south of downtown Saint Paul across the Mississippi. The park is 384 acres in size.

Few parks anywhere can simultaneously showcase caves, a waterfall, a breathtaking overlook, overgrown remnants of a former riverside town, a major lake, regional riverfront trails, and a historic industrial site. It is rarer still to find such an oasis within a fifteen minute walk of a downtown that employs 50,000 people. Yet, nestled along the lush bluffs of Saint Paul's West Side and the City of Lilydale, is Lilydale Regional Park.

Lilydale Regional Park traces its history to 1965. Historic river floods that year marked a profound change in the Mississippi River Valley around Saint Paul. The floods left a soggy legacy, marking the beginning of the end for the historic immigrant neighborhoods on the city's west side flats. In the intervening years, scores of modest homes and small businesses gave way to a floodwall, an industrial park, and more recently, dreams of a mixed-use riverfront redevelopment.

Just upriver, the historic Lilydale town center met a parallel fate, but this time, instead of homes being replaced by a floodwall or industry, the neighborhoods of lower Lilydale were returned largely to a more natural state. The State Legislature designated historic Lilydale as a regional park in 1971. Where Lilydale traces its roots to its place along the river, the City of Lilydale is now centered atop the bluff that overlooks its origins below. Lilydale Regional Park occupies nearly half of the acreage in this community of just 800 residents. For that reason, this tiny city transferred ownership of its portion of the park and its management. Eventually, the park ended up in the hands of the Saint Paul Parks and Recreation Department, which already managed the portion of Lilydale Regional Park in the City of Saint Paul.

By the 1980s, most traces of the park's former inhabitants had been removed. The City struggled to control illegal dumping in the park, and on just one day in 1988 cleaned up a jaw-dropping 153,989 pounds of dumped trash.

What followed was a formalized physical connection between the Park's lowlands around Pickerel Lake and Cherokee Park up hundreds of feet on the bluff tops above. The completed Brickyard Trail was dedicated in 2007. Remnant bricks scattered along the trail recall the area's former use as a brickyard.

Restoration/Conservation Overview: In 2014, Parks secured a Conservation Partner's

Legacy grant to restore the floodplain forest in Lilydale Regional Park. This program will enhance and manage approximately 54 acres of disturbed floodplain forest through invasive species removal and control, and reforestation efforts. The project will improve tree canopy diversity, increase connectedness of high-quality forests, increase the probability of a self-sustaining forest community, reduce sedimentation of impaired waterbodies, and improve habitat for fish and wildlife.

Marydale/ Loeb Lake

Marydale Park was established by community members in 1974 after years of efforts to turn what was essentially a dump (Loeb Lake) back into a natural area. The lake is a DNR designated children's fishing pond, and is stocked annually with crappies and bluegills. The park contains a one mile trail around the lake.

Old Wagon Road (Desnoyer Park)

Old Wagon Road is located in the Desnoyer Park neighborhood, north of the Lake Street Bridge connecting Minneapolis and Saint Paul. The Meeker Island Lock and Dam (originally known as Lock and Dam No. 2) is located at the site and was the first lock and dam facility built on the Upper Mississippi River. After a construction period lasting eight years, the site was only in operation for five years from 1907 to 1912 when the growing interest in hydroelectric power led to design and construction of today's Lock and Dam No. 1 (the Ford Dam) a few miles downriver. It was realized that the new dam could take over the function provided by this first site and another small dam a short distance downriver.

Lock and Dam No. 1 opened in 1917, and a hydroelectric plant was added there in the 1920s to power the Ford Motor Company's Twin Cities Assembly Plant. The Meeker Island dam was demolished, although some ruins of the lock remain. Tops of the old lock walls become visible during low water periods on the river.

The Meeker Island Lock and Dam ruins were added to the National Register of Historic Places in 2003. In 2005 a \$380,000 restoration project began to create a public park near the dam. It was finished in 2007.

Restoration/Conservation Overview: A paved trail along the historic right-of-way of Old Wagon Road was recently constructed connecting to the interpretive area overlooking the historic lock and dam site.

Phalen Regional Park

Acquired by the city in 1899, the area is named for Edward Phalen, one of the first settlers in Saint Paul, who also held claim to the land near Swede Hollow. From 1901 to the 1990s, Phalen Lake was dredged while the shoreline was converted to manicured lawn. This significantly increased erosion, and in 1920 an attempt to curb the erosion

was made by placing riprap along the lake's edges. By 1990 Lake Phalen was significantly degraded by erosion and invasive weeds. This degradation was unsightly and in some cases hazardous leading up to the decision for the ecological restoration of Lake Phalen.

Restoration/Conservation Overview: The Lake Phalen Shoreland Ecological Restoration Project began in 2000. This initiative planned on addressing erosion, habitat, lakeshore use, and aesthetic issues. Long-term goals were to stabilize shoreline through native plantings, add informal lake access points, and to educate residents on how to be involved with the project. Phalen has 222 acres of water, 272 acres of land, a 3.2 mile trail around the lake, a beach, golf course, amphitheatre, recreation center and various shelters.

Swede Hollow

A small, steep wooded ravine among the bluffs, Swede Hollow was first settled by Edward Phalen (for whom Phalen Creek is named) in 1841. It is one of the oldest settled areas in the city of Saint Paul, which in 1841 boasted only nine cabins, Fort Snelling, and Pig's Eye Tavern. Named for its second inhabitants, a group of Swedish immigrants, the area was a slum village for over 140 years where waves of immigrant groups including Swedes, Poles, Italians and Mexicans settled.

Used as a dump by citizens on the nearby bluffs (whose homes were often mansions), the area never received electricity. Homes in the hollow were made of scavenged scrap materials, and often lacked plumbing; residents instead built outhouses directly over Phalen Creek, which flows into the Mississippi. Freshwater for drinking came from the north end of the creek fed by springs. These springs were also used by the Hamm's Brewery and mansion beginning in 1860. Occupied in this manner until 1956, the area was eventually declared a health hazard. In December of that year the remaining occupants were forcibly evicted and the area was burnt to the ground. Nearby areas continued to use the hollow as a dump, and it became a popular home for hobos. In 1976 the area was cleaned up and declared a nature center.

Restoration/Conservation Overview: Conservation and restoration planning began in 1999, with site design calling for four sections of restoration focus. Three of these sections will be primarily dry prairie, with the remaining section a maple-basswood forest. Current land cover has not yet reached restoration goals. Disturbed deciduous forest and disturbed deciduous woodland currently occupy the proposed maple-basswood forest/oak forest mesic subtype. The current disturbed wetland will eventually be restored to a wet prairie/wet meadow, and the urban park segment (currently trees and grasses) will be restored to mesic prairie and mesic oak savannah.

West Side Bluff

The West Side Bluffs get their name from their location west of the Mississippi as riverboats neared Saint Paul. It is believed that Native Americans started managing the West Side Bluffs hundreds of years ago to provide habitat for game birds and animals. Savanna vegetation (dry oak savanna) on the top of the bluff was burned to maintain prairie vegetation, while the slopes were forested primarily as maple-basswood forest and oak forest with a floodplain forest at the bottom of the bluff. During the 1820s to 1830s the bluffs were cleared for lumber exposing them to erosion and invasive vegetation. Trees and shrubs were constantly trimmed or removed to maintain views of the city from the bluffs. Due to these disturbances invasive species such as boxelder, burdock, and Canada thistle have taken root.

Restoration/Conservation Overview: In 2001 the West Side Bluff Ecological Inventory and Vegetation Management Plan was created to outline restoration implementation and monitoring. This plan has been implemented and has successfully restored much of the original ecosystems of the bluffs. The West Side Bluffs are composed of Cherokee Regional Park, Prospect Crest, and Prospect Park.

Appendix B: Conservation Projects and Grants

Why These Sites?

Environmental Services manages over 2,300 acres of natural areas in Saint Paul – which frequently leads to the fundamental question, “How do we decide which sites to enhance or restore?”

Decisions are based upon three main factors:

- the site’s ecological significance
- community interest and support available to assist with the effort
- funding availability

Ecological significance is determined by analyzing a site’s current use and condition, inventorying the existing flora and fauna, and identifying future plant community goals. The Minnesota Department of Natural Resources (DNR) has completed some of this work for us as a part of the Minnesota County Biological Survey. The DNR has identified native plant communities and ranked their significance throughout the state, including lands within the Mississippi River corridor in Saint Paul. Land with high value of ecological significance, such as remnant prairies or floodplain forest, are obvious targets for restoration or enhancement activities. Other, degraded parcels of land are targeted for restoration or enhancement in an effort to protect valuable resources of the state, such as Lake Como and Lake Phalen shoreland restoration projects and raingarden installations to protect water quality of the Mississippi River. Sites with documented inventories of rare or threatened plant species also rank high on the list of sites to protect, and provide valuable scoring criteria when seeking funding.

Community support is a vital component of the decision process. Volunteer engagement and community support is often the catalyst that allows the city to secure funding for site enhancement and restoration activities. This engagement also creates a community-based, grassroots interest in protecting and sustaining Saint Paul’s natural environment.

Grant funding provides the financial framework needed to secure equipment and contractual services to maintain and restore sites. Environmental Services annually manages many different grants.

Grants

Conservation Partners Legacy grant program (CPL)

The Conservation Partners Legacy grant program (CPL) receives its funding from the Lessard-Sams Outdoor Heritage Fund through the Clean Water, Land, and Legacy Constitutional Amendment passed by voters of Minnesota. This program is managed by the Minnesota Department of Natural Resources (DNR). Competitive grants between \$5,000 to \$400,000 are awarded to local, regional, state, and national nonprofit organizations, including government entities. These grants work to enhance, restore, or protect the forests, wetlands, prairies, and habitat for fish, game, and wildlife in Minnesota.

In 2013, Environmental Services secured a \$39,000 CPL grant to enhance and manage approximately thirty acres of mesic oak forest bluffland habitat, inclusive of ten acres of Southern Dry Sandstone Cliff, along the Mississippi River bluff within Hidden Falls Regional Park. Enhancement of these native plant communities will be accomplished through invasive species management and reforestation efforts focused within accessible areas of the Mississippi River bluff. This project will focus on areas surrounding the imperiled native cliff plant community. The primary activities will involve controlling invasive species, improving tree canopy diversity, increasing connectedness of high-quality forests, increasing the probability of a self-sustaining forest community, reducing sedimentation of impaired water bodies and improving habitat for fish and wildlife.

In 2014, Environmental Services secured a \$135,000 CPL grant to enhance and manage approximately 54 acres of disturbed floodplain forest in Lilydale Regional Park through invasive species removal and control, and reforestation efforts. The project will improve tree canopy diversity, increase connectedness of high-quality forests, increase the probability of a self-sustaining forest community, reduce sedimentation of impaired waterbodies, and improve habitat for fish and wildlife. This program will focus on a significant land parcel in the Mississippi River Critical Area, within the Mississippi National River and Recreation Area (MNRRA) and the Upper Mississippi River National Wildlife Refuge Important Bird Area.

In 2015, Environmental Services secured a \$115,000 grant to enhance and manage approximately 54 acres of disturbed floodplain forest in Hidden Falls Regional Park through invasive species removal and control, and reforestation efforts. The project will improve tree canopy diversity, increase connectedness of high-quality forests, increase the probability of a self-sustaining forest community, reduce sedimentation of impaired waterbodies, and improve habitat for fish and wildlife.

REI grant program

REI's grants program seeks to maintain and enhance diverse, accessible, and popular areas where their members recreate.

In 2013, Environmental Services and Environmental Education received a \$10,000 grant from REI. The top priority work for this grant is to actively engage volunteers in the creation of interpretive trail infrastructure and information resources for hikers, snowshoers, and climbers through restoration work, citizen science, and information-sharing primarily in Crosby Farm Regional Park, Lilydale Regional Park, and the Como Woodland Outdoor Classroom.

In 2014, Environmental Services and Environmental Education received a \$10,000 grant from REI. Saint Paul Parks and Recreation's top priority natural resources work for this grant is to actively engage volunteers and the general public in habitat restoration and wildlife monitoring activities within one of Saint Paul's newest natural areas – Trout Brook Nature Sanctuary, and the oldest – Como Regional Park.

REI funding will be used to restore highly visible sections of the restored, 3,300 lineal foot-long stream channel, Trout Brook. Community volunteers will be engaged in the restoration process to plant thousands of native wetland plugs that will help to filter stormwater runoff from a 150 acre drainage area – thereby protecting the water quality of the Mississippi River. As a former brownfield, Trout Brook presents a unique opportunity to evaluate restoration success through wildlife monitoring. As a part of the 2014 REI grant, Parks will establish the Parks after Dark program series to engage volunteers in mammal surveys, bat surveys, and insect surveys (nocturnal, aquatic, and diurnal). Over time, data collected will be used to evaluate habitat restoration success and provide wildlife information accessible via smart devices to park users.

REI funding will also be used to improve the quality of habitat and user experiences along 1.2 miles of interpretative trails in the Como Woodland Outdoor Classroom. Following additional invasive species removal efforts, community volunteers will assist with seed sowing and plug planting activities to reintroduce Minnesota native plant species to the site. While working alongside City staff, volunteers will be educated about the native plant communities in the Classroom and will assist Parks staff in tracking the phenology of the site through the AweSnap! program.

AweSnap! is a citizen science photography program, funded by REI in 2013, to engage volunteers in monitoring plant and animal life in Saint Paul Parks. Photos taken by participants as a part of this program are uploaded to an online platform. This online platform acts as a real-time wildlife guide for park users, while providing species diversity and phenology data to park managers.

Appendix C

Resource List

Resources on Site History

City of St. Paul, MN - Official Website Conservation. Web. 03 Feb. 2011.
<<http://www.stpaul.gov/index.aspx?NID=4428>>.

Park Location & Information

City of St. Paul, MN - Official Website. Web. 03 Feb. 2011.
<<http://www.stpaul.gov/facilities.aspx>>.

Resources on Plants

Minnesota Noxious Weeds

Minnesota State Noxious Weeds. United States Department of Agriculture. Web. 3 Feb. 2011. <<http://plants.usda.gov/java/noxious?rptType=State&statefips=27>>.

Minnesota Wildflower Identification

Tekiela, Stan. *Wildflowers of Minnesota: Field Guide.* Cambridge, MN: Adventure Publications, 1999. Print.

Plants of Minnesota

"Plants of Minnesota: Minnesota DNR." *Minnesota Department of Natural Resources: Minnesota DNR.* Web. 03 Feb. 2011. <<http://www.dnr.state.mn.us/plants/index.html>>.

Weed Identification Videos

31, Kim.Binning January. "» Videos Weed Science." *For Your Information.* Web. 03 Feb. 2011. <<http://fyi.uwex.edu/weedsci/category/videos/>>.

Resources on Birds

Cornell Lab of Ornithology

"Search for a Bird by Entering Name, Description, and Keywords, All About Birds, Cornell Lab of Ornithology." *Your Online Guide to Birds and Bird Watching, All About Birds, Cornell Lab of Ornithology.* Web. 03 Feb. 2011.
<<http://www.allaboutbirds.org/guide/search>>.

National Geographic Guide North American Bird Identification

Dunn, Jon L., and Jonathan K. Alderfer. *National Geographic Field Guide to the Birds of North America.* Washington, D.C.: National Geographic, 2006. Print.

Peterson Guide to North American Bird Identification

Peterson, Roger Tory. *Peterson Field Guide to Birds of North America*. Boston: Houghton Mifflin, 2008. Print.

Resources on Insects

Bug Finder

Insect and Spider Identification - Details on North American Bugs. Web. 03 Feb. 2011. <<http://www.insectidentification.org/>>.

Insect Identification

Leahy, Christopher W., Richard E. White, and Donald Joyce Borror. *Peterson First Guides: Insects : the Concise Field Guide to 2000 Common Insects of North America*. Boston: Houghton Mifflin, 1987. Print.

Maps

St Paul Interactive Map

St. Paul GEO-Info. Web. 03 Feb. 2011. <http://gis.ci.stpaul.mn.us/gis/gismo_public/html/>.

Parks and Recreation Maps

"City of St. Paul, MN - Official Website - Maps." *City of St. Paul, MN - Official Website*. Web. 03 Feb. 2011. <<http://www.stpaul.gov/index.aspx?nid=1546>>.