



Our new mission: to create tools to empower stewards for healthy urban ecosystems.

Licton Springs - Restoration Monitoring

In the fall of 2006, SUN conducted vegetation sampling at Licton Springs Park in North Seattle. The namesake for the 7.5 acre park originates from the Salish term of the Duwamish tribe meaning "red colored" or "painted", referring to the historic mineral springs which flow from the site. In 2001, the Seattle Department of Parks and Recreation created a vegetation management plan to help guide the restoration of the parks natural areas. Since that time, significant habitat restoration efforts have occurred throughout many areas of the park.

(continued on page 4)

Upcoming Work Party and Tour at Licton Springs – March 10!

Visit www.seattleurbannature.org
for more details

Native Plants of Seattle



Deer Fern - *Blechnum spicant*

Monitoring for success: Scientific evaluation of stream restoration projects in Western Washington

Seattle Urban Nature just completed an exciting and innovative contract with EarthCorps to plan and implement a monitoring program for 10 recently restored project sites. The sites, funded by the Community Salmon Fund Program- a joint effort between King County and the National Fish and Wildlife Foundation, were selected to represent a wide variety of project objectives, from replanting riparian vegetation to removing fish passage barriers. All sites were located in King, Snohomish and Pierce counties in Western Washington. The overall goal of this project was to collect baseline data about stream and vegetation conditions on all project sites. *(continued on page 2)*



EarthCorps members Kui Li and Bob Stinson collecting data with SUN ecologists at Newaukum Creek.



New Projects in 2007 Mapping Seattle's Urban Habitat in 2007

SUN is pleased to announce that the Bullitt Foundation has awarded SUN \$20,000 to conduct a Seattle Citywide Habitat Assessment (CHA). The CHA is a long-term monitoring program using repeatable, accurate methodology that measures specific indicators of forest function and health. Measuring the same plots over time will enable assessment of declines or improvements in the health of the urban forest in Seattle.

(continued on page 6)

Inside This Issue

Urban Ecology Symposium
New SUN projects
SDOT Landscape Inventory
New Faces at SUN
SUN Calendar of events

Monitoring for Success-(Continued from page 1)

SUN ecologists Ella Elman and Nelson Salisbury developed monitoring protocols to measure a range of ecological variables for in-stream and vegetation parameters. These included:

- Geomorphology (the size, shape and physical condition of the stream channel)
- Substrate composition (size and proportion of sand, pebbles and cobbles on the stream bottom)
- In-stream habitat (number and size of glides, pools and riffles in the stream)
- Water flow and temperature
- Stream bank stability
- Large woody debris (LWD)
- Tree density and understory vegetation
- Snags and Coarse Woody Debris (CWD)

They then conducted classroom and field training in these methods for a six-member EarthCorps crew composed of four international and two U.S. members. Ella and Nelson supervised the EarthCorps crew during September and October 2006 field data collection.

Table 1. Ecological indicators for streams in Western Washington, compared to conditions on nine sites in Western Washington.		
Indicator	Properly Functioning	% of sites that met criteria
Water Temperature	10-14° C	100% of measured sites
Channel Substrate	Dominant substrate is gravel or cobble	44%
Large Woody Debris frequency	>50 pieces/km	89%
Large Woody Debris size	>61 cm in diameter	11%
Pool Frequency	44 pools/km	40%
Pool Quality	Pools >1 meter deep	0%
Stream Width/Depth Ratio	<10	33%
Stream bank Condition	>90% stable	88%

To analyze the results, they identified specific ecological benchmarks for undisturbed streams and vegetation sites in Western Washington and compared them to monitored sites. Table 1 summarizes the stream benchmarks compared to natural systems, while Table 2 summarizes vegetation benchmarks compared to restored sites.



Stream banks along McAleer Creek in the City of Lake Forest Park, one of the surveyed sites.

Key Findings- Streams

Parameters for water temperature, number of LWD pieces per km and stream bank stability were met or exceeded by the vast majority of surveyed sites. The remaining five parameters – channel substrate, LWD size, pool frequency, pool depth and channel width/depth ratio were met by fewer than half the sites, and pool depth in particular was not met by any site (Table 1). *(continued on page 3)*

Table 2. Benchmarks for Forested and Scrub-Shrub Mitigation Wetlands in Western Washington, compared to conditions documented on 10 sites in Western Washington.		
Benchmark	Properly Functioning	% of sites that met criteria
Aerial cover of native woody species	80% aerial cover by year 8	80%
Aerial cover of woody invasive species	< 5% aerial cover during years 6-11	20%
Richness of native tree species	4 tree species	90%
Richness of shrub species	6 shrub species	90%

Monitoring for Success-(Continued from page 2)



Large Woody Debris in Shinglemill Creek, in Vashon Island, one of the surveyed project sites

Two key findings emerge from this data:

1. The vast majority of LWD placed into the stream as part of the projects was smaller than 50 cm in size. Criteria for a properly functioning stream call for a minimum diameter of 61 cm (Table 1). Because it will take over 50 years for the riparian vegetation and upstream contributions to add LWD, placing larger diameter LWD into streams during restoration projects will help to meet the ecological benchmark for this parameter.
2. Sedimentation can be seen as one of the primary factors affecting degradation of stream function. Further long-term monitoring is necessary to assess the degree to which reforestation of riparian areas and restoring LWD are influencing sedimentation rates and allowing natural processes to re-establish in the project areas.

Key Findings- Riparian vegetation

All of the evaluated projects had restoration of a riparian buffer as a stated objective and 80% of the sites had removal of invasive species as an objective. The vast majority of sites met or exceeded three of four vegetation benchmarks, including aerial cover of native woody species, native tree species diversity and native shrub species diversity (Table 2).


Only 20% of sites met or exceeded the benchmark for aerial cover of woody invasive species. Key findings emerging from this data are:

- Invasive tree species are impacting restoration projects: Six species of invasive trees were present in the regenerating layer of surveyed sites at an average density of 107 stems/ha.
- Himalayan and evergreen blackberry (*Rubus discolor* and *R. laciniatus*) are the most commonly present invasive shrub species on restoration sites.
- Reed canarygrass (*Phalaris arundinacea*) poses a serious invasive problem at many restoration sites. This species is very difficult to eradicate as it spreads quickly by rhizomes and stolons and can prevent native species from establishing.

Since 1990, over a billion dollars has been spent annually on river restoration projects in the United States. However, a 2005 study by Bernhardt et al. of more than 37,000 river restoration projects in the United States found that only 10% of all projects had any type of monitoring and that methods used for monitoring were not appropriate for assessing the ecological effectiveness of restoration activities.

It is our hope that this project will encourage more monitoring of restoration activities and provide managers help in deciding what issues to focus on.

For more information, contact Ella Elman (ella@seattleurbannature.org) and watch for the full report on our website in a few months!



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Licton Springs *(continued from front page)*

Earlier last year, the Friends of Licton Springs approached SUN to discuss the possibility of updating the now out-of-date vegetation management plan. In May of 2006, Friends of Licton Springs was awarded a grant from the Seattle Department of Neighborhoods and partnered with SUN to create an addendum to the VMP. In planning for this project, SUN has met with Seattle Department of Parks and Recreation staff and presented our goals and objectives to the Licton Springs Community Council.

Last fall, SUN ecologists sampled the existing vegetation throughout the natural areas of the park. In areas where substantial restoration has taken place, transects were sampled in order to provide scientifically rigorous data to assess the current vegetation communities and to compare this information to corresponding data presented in the 2001 VMP. Other areas were visually assessed for species composition and significant alterations from the existing VMP.

By tracking the specific changes that have resulted from the restoration efforts in these areas, we hope to gain insight into which practices and techniques have been the most effective thus far. This effort will produce updated management

recommendations specific for each restoration zone, as well as provide general proposals to tackle the pervasive reed canary grass that has invaded a significant portion of the parks wetlands. The addendum will also include updated maps showing revised habitat boundaries and restoration zones. These maps will include a wide variety of ecological and geographical information that will aid in the future restoration of the park. The VMP addendum will be available for download on our website at www.seattleurbannature.org in the next few months. For more information, contact SUN at 206.522.0334.



Recent restoration site cleared of blackberry at Licton Springs

SUN Fact Sheets—Free on the Web!

SUN has produced a number of color fact sheets for the public highlighting invasive shrubs, trees, and plants found throughout Seattle's parks. We also have a fact sheet with some examples of native plants that you may consider for your property.

Go to www.seattleurbannature.org to download these free fact sheets today!



Hedge Nettle (Stachys chamissonis var. cooleyae) at Licton Springs



Become a SUN Board Member or Join a SUN Committee

SUN is looking to grow its board by two to three members. You can also join our fundraising or outreach committees. Diverse backgrounds, ages, and ethnicities encouraged! Some areas of expertise we are looking for include:

- Accounting
- Fundraising
- Non-profit management
- Legal
- Outreach
- Grant Writing
- Education
- Media & Marketing

If you are interested in joining, please contact Sharon London at sharon@seattleurbannature.org.

SDOT Landscape Inventory

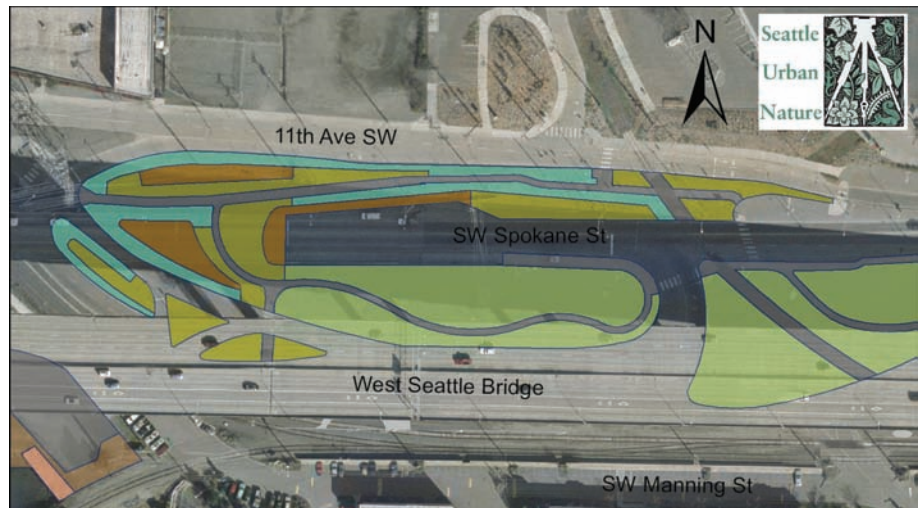
SUN recently finished our habitat mapping project with the Seattle Department of Transportation (SDOT). During the 2006 field season, SUN ecologists inventoried and mapped nearly 500 landscaped areas managed by SDOT throughout Seattle. The resulting database will allow SDOT land managers to better track and schedule the regular maintenance of these areas.

Managers now have specific data that allows them to quantify and locate the different types of landscaping found throughout the city. They will also be able to identify the quantity and distribution of individual landscape species. For example, we now know there are approximately 8.6 acres of English ivy on managed landscape areas.

The species cover data that we collected also included weedy species such as Himalayan blackberry and Scotch broom. This will help SDOT better manage for these species and provides information

about landscape areas that may currently be lacking active maintenance.

In addition to the vegetation survey, we also inventoried street trees in these areas. We updated information for more than 2,200 trees and added an **additional 1,200 trees** to the database. This provides important information necessary to track, maintain, and improve the canopy cover of our city. We are currently in the process of transferring the data to the Department and are looking forward to future collaborations with SDOT.



SUN Services

SUN offers a number of services to assist public, private, and non-profit organizations.

Ecological Services

- Habitat Mapping and Assessment
- Vegetation Inventory and Management
- Restoration Planning and Monitoring
- Vegetation Monitoring
- Wetland Delineation

GIS Services

- Custom Mapping of Project Sites
- Mapping for Grant Reporting Purposes
- GPS Data Collection
- Printing Large Size Maps or Posters

Training and Education

- Habitat Survey and Assessment Methods
- Monitoring Restoration Sites
- GPS and GIS Training
- Plant Identification
- Habitat Restoration Techniques

Please contact us at (206) 522-0334 for more information.

Urban Ecology Symposium a success!

On October 13th, 2006, over 100 people gathered in the Forest Club Room in Anderson Hall at the University of Washington to attend the first annual Urban Ecology Symposium, titled: **Urban Ecology in the Seattle Metropolitan Area: Research, Policy and Planning**. The symposium was presented by the University of Washington Urban Ecology Program and Seattle Urban Nature.

The program brought together speakers from academia, government, community groups, non-profit organizations and the international community. Several speakers from the University of Washington started the day. These included, Dr. John Withey who discussed valuing urban ecosystems, Dr. Tom Hinkley who discussed a new method of collecting data to assess the health of urban forests and many other great speakers from UW.

The second part of the program featured talks from the local forest restoration community. Katie Moller and Mark Mead from Seattle Parks and Recreation talked about the Green Seattle Partnership and the need to link academic research with on-the-ground restoration efforts; *(continued on page 6)*

Symposium *(continued from page 5)*

Jeff Bash from Seattle Urban Nature gave a talk about SUN's Citywide Habitat Assessment project; Peggy Gaynor (President of the board for SUN) spoke about her long-term involvement with the Friends of Madrona Woods and the restoration work they have accomplished over the years; and Jeremy Jones of EarthCorps presented an overview of EarthCorps restoration work in the community.

The final part of the program included lectures by international scientists from Berlin, Germany. Patrick Hosert, Gerd Wessolek, Wilfried Endlicher, Gunnar Neutzmann, and Elmar Kulke, discussed topics such as urban soils, high resolution remote sensing, modeling urban groundwater flows and a brownfield revitalization project. The event was a great success and brought together many diverse individuals and organizations to exchange information and further our knowledge of urban ecology. Many thanks to the Urban Ecology Program for providing lunch, refreshments and a great reception following the seminar.

We hope to see you all again next year!



Peggy Gaynor, Board President of Seattle Urban Nature talks about restoration activities in Madrona Woods Park at the Urban Ecology Symposium.

Interested in a Habitat Map of your part of Seattle? SUN Maps cover the entire city of Seattle.

For additional details, contact us at (206) 522-0334 or download a form to order individual maps at www.seattleurbannature.org



Shaggy Parasol mushrooms (Lepiota rachodes) at Licton Springs

New Projects 2007 *(continued from page 1)*

This will help managers to:

- Reduce decline or loss of habitats and species;
- Determine whether desired conditions in Seattle's habitats have been achieved;
- Identify successes and limitations of management strategies and make improvements;
- Make the best use of limited resources by prioritizing habitat needs.

The goal of the CHA is not only to provide important scientific information to managers and scientists, but to educate the public and raise awareness of:

- The different forested habitats in Seattle's urban parks and open spaces
- The threats posed to these habitats by the urban environment
- Specific problems that need to be addressed for each habitat
- The need to preserve and restore the most rare habitats in the city

SUN is grateful to the Bullitt Foundation, and is now seeking additional contributions to fully fund the survey.

(continued on page 7)

New Projects 2007 *(continued from page 6)*

Working in Shoreline's Parks

The City of Shoreline contracted SUN to conduct a resource inventory in four Shoreline Parks: South Woods (16 acres), Hamlin Park (80 acres), Shoreview (48 acres) and Boeing Creek (40 acres). These four parks comprise approximately 50% (184 acres) of Shoreline's public parks, and contain important wetland and natural areas. This assessment will provide the City of Shoreline with valuable information and analysis on a significant portion of city forest lands. Specifically, this effort will produce the following information for the City of Shoreline:

1. Location and extent of habitat types in four parks within the city;
2. Current forest structure and composition present in these parks;
3. Location and extent of invasive species infestations;
4. Management strategies based on an analysis of collected data.

This information can then be used to make planning and management decisions for both forest stewardship and recreational needs.

SHADOW Lake Bog

SHADOW (Save Habitat and Diversity of Wetlands) manages more than 90 acres of forestland and bog habitat in the Renton Highlands. The goal of the organization is to protect this land for future generations and to provide educational opportunities to students in the region.

SHADOW has contracted SUN to map key natural resource information on their 90 acres of property and provide a plan that will guide future management of the area.

Specific efforts will include:

1. Location and extent of habitat types on SHADOW property;
2. Current forest structure and composition present in these habitat types;
3. Location and extent of invasive species infestations;
4. Establishment of monitoring plots;
5. Management strategies based on an analysis of collected data; and identification of educational opportunities based on the findings in the survey.

SUN is excited to begin the partnerships with the City of Shoreline and SHADOW Lake Bog.

New faces at Seattle Urban Nature

Two new board members, a new executive director and three new interns have joined the SUN team since our last newsletter.

New Executive Director

When **Jeff Bash** decided to move to the Department of Ecology in October, **Sharon London** took over the helm as Interim Executive Director. At the SUN annual board retreat on January 6, 2007 Sharon was voted in as the permanent ED of SUN. Sharon brings non-profit management experience from her work as ED of Homewaters Project, and as a project advisor for the World Wide Fund for Nature (WWF International) in Laos. She is excited to put her Geography/GIS and conservation background to work for SUN.



SUN Board and staff, top: Charlie Crissman, April Mills, Bryan Baker, Josh Wozniak, Matt Mega, Sharon London, bottom: Randi Shaw, Ella Elman, Peggy Gaynor, Janet Way, Brian Higgins, Nelson Salisbury (not pictured Nancy Whitlock)

SUN is pleased to welcome **Charlie Crissman** and **Brian Higgins** to our Board of Directors. Charlie works as an advisor to small companies with a focus on business strategy, fundraising and product development. He is an avid distance runner and an enthusiastic and frequent user of Seattle's urban trails. Brian works as a restoration designer focusing on wetland and riparian restoration projects. He is project manager and PNW lead for Transportation Services at Jones & Stokes. In his free-time, he pursues his love of music with his wife in their not-for-profit venture, Four Sheep Concerts. Welcome Charlie and Brian— SUN is lucky to have you on the board!

(continued on page 8)

SUN Calendar

March 10th

**Licton Springs Work Party
including tours of SUN's work!
10:00 a.m.– 2:00 p.m.**

**February 26th -March 2nd
National Invasive Weeds
Awareness Week!**

**SUN's Mission is to create tools
to empower stewards for
healthy urban ecosystems.**

Board

Peggy Gaynor **President**
April Mills **Vice President**
Charlie Crissman **Treasurer**
Josh Wozniak **Secretary**
Andy Bethurum
Brian Higgins
Matt Mega
Randi Shaw
Nancy Whitlock
Bryan Baker (Advisory)
Janet Way (Advisory)

Staff

Sharon London **Executive Director**
Ella Elman **Ecologist**
Nelson Salisbury **Ecologist**



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Seattle, WA 98115
(206) 522-0334**

Thanks to everyone who contributed to our fall fund drive !

A contribution to Seattle Urban Nature helps us to provide technical services to community groups working to restore urban forests. We rely on the support of people like you for our continued success.

**SUN is a 501(c)3 non-profit—
contributions are tax deductible.**



**Yes, I would like to help the Seattle Urban Nature to create tools to empower
stewards for healthy urban ecosystems.**

Please make your check out to Seattle Urban Nature

\$35 \$65 \$100 \$250 Other

And mail to:

**Seattle Urban Nature
5218 University Way NE
Seattle, WA 98105**

Or contribute at www.seattleurbannature.org

THANKS FOR YOUR SUPPORT!

New Faces (continued from page 7)

Interns

SUN also welcomes **Derek Wilson, Erica Capuana, and Eve Dixon** as interns. Derek, who is switching careers from electrical engineering to GIS, is assisting SUN in updating our 1999-2000 survey GIS data. Erica, a veteran EarthCorps crew leader, is helping with Outreach and other tasks. SUN also welcomes Eve Dixon, who will assist with Outreach and office administration and brings a wealth of knowledge of the plants and ecosystems of Western Washington from her work at the North Olympic Land Trust.

*At SUN office:
Erica Capuana, Sharon
London, and Eve Dixon*



Comments, questions, or submissions? Please contact Sharon London, Executive Director via e-mail at sharon@seattleurbannature.org. If you would like to receive this newsletter in a different format or would like to be removed from the mailing list, please let us know. Learn more about SUN at www.seattleurbannature.org. **Seattle Urban Nature © 2007**