



the Watershed Watch

Newsletter of the Jordan River Watershed Council

Fall 2011, Volume 9

Mission: The Jordan River Watershed Council is dedicated to the ecological and economic sustainability of the Salt Lake Countywide Watershed through the promotion of stakeholder involvement.

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Beautify, Protect, Conserve...Oh My! Using Bioretention Gardens to Minimize Stormwater Impacts

by Watershed Planning & Restoration
Program Staff

Low Impact Development (LID) is an ecological approach to stormwater management that keeps—and treats—stormwater onsite by preserving and creating natural landscape features that mimic pre-development hydrology. Typically, these are small, cost effective landscape features used on sites with 5 acres or less of drainage area. Almost all aspects of the urban environment have the potential to function as components of a Low Impact Development: roofs (by including green roofs), parking lots and sidewalks (by installing porous pavements), medians and streetscapes (by incorporating bioretention areas).

Bioretention areas are essentially soil and plant-based filtration devices. Also called infiltration gardens, these landscape areas are designed to collect stormwater runoff (rain, snowmelt, etc.) and filter it back into soils and groundwater onsite (rather than letting it go down the stormdrain). Bioretention areas can also be designed to remove pollutants from runoff water. Pollutants are treated and removed through a variety of physical, biological, and chemical processes. According to the EPA, the environmental benefits of bioretention include reduced flooding, improved water quality, natural habitat, reduced urban heat effect, improved air quality, mitigated global warming, and

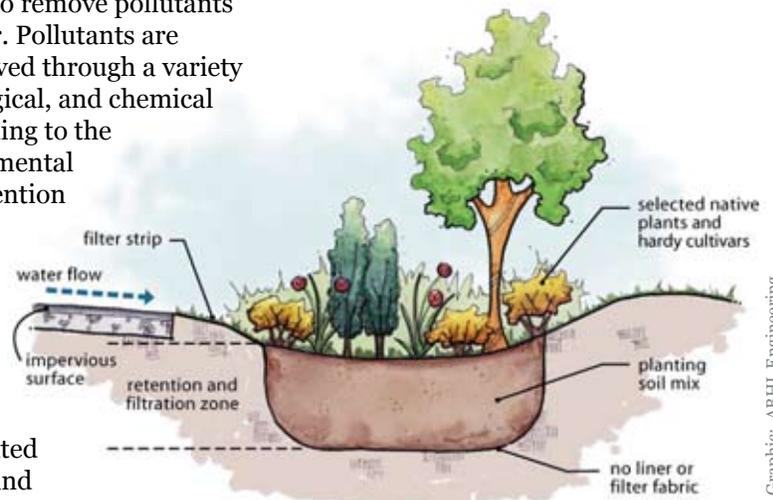
increased groundwater recharge. There are some constraints with bioretention areas that should be taken into consideration. Bioretention can be used in many different climates; however, in arid and semi-arid regions like Utah, limited water supply must be taken into consideration. Perhaps the most important consideration is plant selection. In Utah, plants that can sustain long periods of drought in the summer as well as cold winters and snowfall must be chosen. Some examples of plants recommended for use in Salt Lake City include Mountain

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Photo: Curtis Hinman

Bioretention gardens are designed to collect, use and treat stormwater in urban and residential settings.



Graphic: ABHL Engineering

BIORETENTION *continued from cover*

mahogany (*Cercocarpus ledifolius*), Silver or White sagebrush (*Artemisia cana*), Saltbrush (*Atriplex gardeneri*), Idaho fescue (*Festuca idahoensis*), Baltic rush (*Juncus balticus*), Greenmolly (*Kochia americana*), Saltgrass (*Distichlis stricta*), Fireweed (*Epilobium angustifolium*) California poppy (*Eschscholzia californica*), and tulips (*Tulipia sp.*) (Houdeshel, C.D. and Pomeroy C.A., "Plant Selection for bioretention in the Arid West" ASCE, 2010). Another obstacle to success of bioretention areas can be maintenance. The vegetation has to remain in good condition in order for bioretention to function properly, which includes making sure the vegetation is given ample time to become established, typically a two-year period.

Local Applications

An infiltration garden has been installed on the University of Utah Campus at the southeast corner of the Civil and Material Engineering building as part of the Sustainable Campus Initiative Fund. Completed in 2010, the goal of this research project is to monitor hydrology over a period of one year to determine how well the bioretention is functioning, with the

hopes that more cells can be installed around campus and the state of Utah. Bioretention gardens could facilitate the University's goal of becoming water-neutral by managing stormwater as a resource to sustain landscaping and reduce harmful stormwater runoff.

Many homeowners have opted to utilize bioretention in the form of rain gardens on their property to help manage stormwater onsite. Shallow depressions where water naturally collects are ideal locations. This is an effective, inexpensive, and

beautiful way to improve water quality while enhancing natural habitat for beneficial insects and wildlife. Check out these websites for more information on using bioretention at your home:

- Rain garden "how-to" manual www.dnr.state.wi.us/org/water/wm/dsfm/shore/documents/rgmanual.pdf
- Design guide for homeowners www.nemo.uconn.edu/publications/rain_garden_broch.pdf
- Construction costs for rain gardens www.werf.org/bmpcost □



What looks like a typical commercial landscape is actually a bioretention garden that collects and uses stormwater runoff at the University of Utah's Civil & Material Engineering building. Soil moisture meters (right) are used to monitor effectiveness, with the goal of installing bioretention gardens campus-wide.

What's up with the Jordan River? Utah Division of Water Quality Update

by Hilary Arens, Division of Water Quality

The Division of Water Quality has been busy making progress on a number of Total Maximum Daily Load (TMDL) water quality studies this summer. The *Upper Emigration Creek TMDL for E. coli* (a bacteria found in the intestines of animals) has gone through a stakeholder and public review process and will be submitted to EPA this fall. Lower Emigration Creek, below Rotary Park, will be a focus for the next stage of this TMDL.

The *Jordan River TMDL for Dissolved Oxygen (DO)* has gone through numerous drafts by our Technical Advisory Committee and stakeholders. A water quality model has been

calibrated and validated that identifies organic matter (OM) as the pollutant with highest influence on DO in the Jordan River. As OM (grass clippings, leaves, etc.) decays it uses up oxygen in the water. Reduced DO has serious impacts on fish and other aquatic organisms that need oxygen to survive. The model indicates that a 38% reduction in OM is needed to achieve the water quality standard for DO. Future studies will be conducted to determine OM origins and pathways, so implementation efforts can target the best actions to improve water quality in the lower Jordan River. The 60-day public review process for the *Jordan River TMDL for DO* will occur this fall, and the Division of Water Quality encourages everyone in the

watershed to review and comment. The report is available online at www.waterquality.utah.gov/TMDL/JORDAN/index.htm.

If you have any questions please contact Hilary Arens at the Division of Water Quality, hilaryarens@utah.gov or (801) 536-4332. □



Parley's Creek Restoration Project

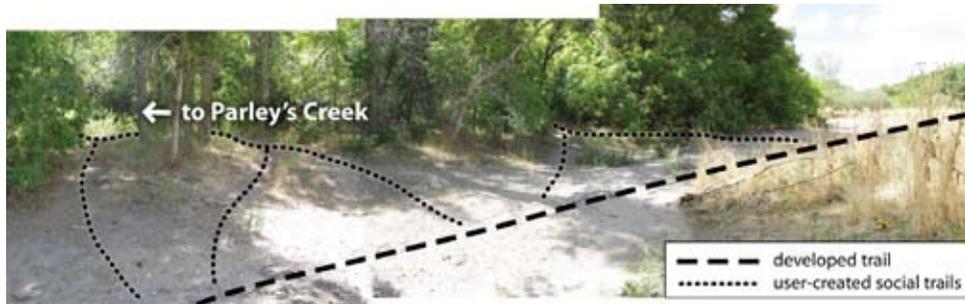
Improving Water Quality, Habitat, and Aesthetics in Parley's Historic Nature Park

by Merritt Frey, River Network

There has been a lot of controversy about practically everything related to Parley's Historic Nature Park. But there is one thing everyone seems to agree on: the importance of protecting and restoring Parley's Creek.

Parley's Creek begins on the steep slopes of the Wasatch Mountains. Just as it crosses from the mountains to the valley, it enters Parley's Historic Nature Park—one of the largest open spaces remaining in the Salt Lake valley. This park is home to the stretch of Parley's Creek most easily accessed by local residents. And while the popularity of the area has had an impact on creek habitat, it remains "one of the most intact ecosystems and one of the most natural contiguous riparian corridors in city boundaries." (Salt Lake City, Parley's Historic Nature Park, Comprehensive Use Plan. Draft 8/30/09). In fact, the creek supports the Bonneville Cutthroat Trout, a native trout species thought to be extinct as recently as the 1970s. Yet the park stretch of creek is suffering from both heavy park use and upstream activities. The creek is identified by the state as impaired, and problems include erosion, invasive species, alteration activities in the stream itself, trash and construction debris, and other issues. Most dramatically, fish kills from illegal dumping and spills have harmed the native fish and caused public concern.

Starting this fall, a creek restoration project will take place along the park stretch of Parley's Creek. This project represents a partnership between Salt Lake City, Salt Lake County, and River Network, and will incorporate input and hands-on work from many others. Improvements will focus on directing user traffic away from sensitive riparian areas, removing invasive species and planting native riparian plants, stream bank stabilization and reinforcing the remaining creek access points. The restoration project will use the new park management plan



The stretch of Parley's Creek running through Parley's Historic Nature Park is well loved and well used, but this has come at a price. Heavy use has trampled riparian (streamside) vegetation, leaving many areas completely bare. This leads to erosion and water quality problems, as well as loss of riparian habitat for animals.

as its starting point, but the project is not about on-leash or off-leash issues. Rather, it is about how to best manage the sensitive areas along the river to improve water quality, wildlife and fish habitat, and aesthetics given the incredible popularity of the park. The restoration plan will be designed to work within whatever parameters the political and social discussions with stakeholders, elected officials and others have decided about the park's future.

The restoration project will also be featured as a national "Learning Lab" project through River Network. This "Lab" will highlight challenges and rewards as the Salt Lake valley community works together in an area filled with controversy, but also filled with opportunities for creative solutions. To learn more visit: www.rivernetwork.org/blog/habitat/learning-labs/parleys □

the real scoop on dog poop...

No one likes seeing or smelling dog poop, but did you know that unscooped poop presents serious issues for water quality and human health? Here are some facts:

what's the problem?

- Dog waste can transmit bacteria and viruses to humans and other animals, including tapeworm, roundworm, *E. Coli*, giardia, salmonella, and more.
- 4 out of 10 U.S. households have at least one dog, and 4 out of 10 of those dog owners don't pick up after their dogs. Gross.
- Unscooped poop in yards, fields, and sidewalks gets into our lakes, streams and rivers, even into groundwater. Swimming anyone?
- Nutrients in dog waste cause excess algae in lakes and streams. This limits light available to aquatic plants. And, as algae decays it uses up oxygen needed by fish.
- Dog waste should NEVER be used as fertilizer.

what you can do!

- Stoop and scoop that poop.
- Always bring baggies when you walk your dog (plus extras to share).
- Seal the bag and toss it in the trash.



5th Annual Salt Lake Countywide

Watershed Symposium

August 10-12, 2011 Wed Thu Fri

Speakers Workshops FieldTrips Networking

Free Event Open to Everyone

Register Online by August 4

www.watershed.slco.org 801.468.3742

Utah Cultural Celebration Center

1355w 3100s West Valley City



Join the conversation about protecting water quality, nature, and our communities.

Find out what's being done to make a difference in our watershed, from mountain snowpack to valley stream!



Salt Lake County Watershed Planning & Restoration Program
www.watershed.slco.org

Highlights from 5th Annual Watershed Symposium!

by Watershed Planning & Restoration Program Staff

This year marked the 5th Annual Salt Lake Countywide Watershed Symposium, quite a milestone for the Salt Lake County Watershed Planning and Restoration Program. For five years now Watershed Planning has provided a forum where professionals and citizens could engage in water-related discussions and experience the Jordan River and other restoration sites firsthand on field trips.

This year the Symposium featured 16 presentations, one workshop, four field trips and one thought-provoking panel discussion which focused on planning and water resource issues along the Wasatch Front. The Keynote Speech was delivered by Laura Hanson, Executive Director of the Jordan River Commission. It was extraordinary to see that in one year since the signing of the Jordan River Commission (which took place at the 2010 Symposium) this organization has already reached across jurisdictional boundaries for the betterment of the Jordan River.

The Watershed Symposium would not be possible without the support of Utah Division of Water Quality, Salt Lake County, and most importantly all of our attendees, field trip leaders, and presenters. Thank you everyone! □



The views expressed in this periodical are those of the authors, not necessarily those of Salt Lake County, the Salt Lake County Mayor, the Division of Flood Control & Water Quality, or any other entity.