Yellowstone's Green Team

Greenstone

Newsletter

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Carpet = Sustainability and Economics

In 2010, Yellowstone National Park launched an innovative pilot demonstration project with United Textile Technologies (UTT) of Dalton, Georgia. Called the Yellowstone Carpet Project, this initiative re-uses recyclable plastic bottles from Yellowstone as feedstock for Georgia-produced carpet materials. These materials were returned to Yellowstone as components in environmentally-friendly carpet installed in Old Faithful Snow Lodge. This project ensures that plastic bottles being hauled out of the park remain in the U.S. to be recycled, rather than being put in a landfill or exported to other countries to be recycled.

Bailed plastics for recycling.

Georgia Tech provided third party verification that the recyclable materials remained in the U.S. and returned to Yellowstone as finished carpet product for the Snow Lodge. Matt Wren, a Georgia Tech employee, followed the plastic shipments and recorded in HD video the movements of the Yellowstone *(cont. on pg. 3)*

Yes! Interns – Creating a Greener Green

Georgia Tech interns are back for another conservation assessment as part of the Yellowstone Environmental Stewardship Initiative (YES!). Bringing a variety of experience to the internship program, the team has collective experience in energy conservation, irrigation systems, water conservation, hydrology, sanitation practices, and building assessments. This summer, they worked on projects addressing energy, storm water management and, in particular, irrigated lawns in Mammoth *(cont. on pg 2).*

GA Tech employee, Joseph Goodman, and NPS employee, Doug Coy, investigate Mammoth's irrigation system.

Special points of interest:

- *Interns monitor sprinklers to innovate ways to reduce water use in Mammoth.*
- *Plastics from Yellowstone were turned into carpet and returned to the Old Faithful Snow Lodge.*
- *Full Circle Recycling reflects that people throw away lots of plastic bottles and encourages reusing them instead.*
- *Yellowstone's Environmental Management Team returns to being the Green Team!*

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BOTTLES, BOTTLES, BOTTLES

Every 5 minutes, Americans collectively throw away 2 million plastic bottles. Stop the cycle! Use a reusable bottle and refill as you go.

After about a month picking up recyclables in the park, I'm astounded at the number of bottled water containers that find their way into the recycle bins. As a person who always brings my water from home in a reusable container, I feel like I must be in a small minority of water users. The plastic bottle bins fill up three or four times faster than the other recycle bins with the majority of the containers being water bottles. The water market must be booming.

However, I have noticed that the employees in the park are fantastic recyclers. Every time I am in the residential areas checking on the bins there are always employees and their families bringing their recyclables to the bins. Way to go! Campers are also pitching in. I think visitors appreciate the opportunity to recycle and I have had several comment favorably on the recycle program and on the cleanliness of the park.

One last observation, coated paper McDonald's-style cups are not plastic.

Keep on recycling.

- Dave Ohlen,
Recycling Coordinator
Full Circle and Four Corners Recycling

CREATING A GREENER GREEN

"CURRENTLY, STORM WATER FROM MAMMOTH IS CHANNELED TO THE CAMPGROUND, CAUSING EROSION."

(from pg. 1) Interns have assessed Mammoth's irrigation practices of keeping the Kentucky bluegrass green to understand current water usage and costs. They are exploring the potential for "smart" (condition-based) irrigation controllers. Rather than rely on a set timer, "smart" controllers use weather and soil moisture data from sensors to control when the irrigation system runs. On the Georgia Tech Campus, using "smart" controllers has reduced irrigation water usage by 40%. In Mammoth, a trial pilot system has replaced a current irrigation controller with a "smart" one. Interns are monitoring the change in water usage to determine the viability of installing "smart" controllers in the area. So far, the "smart" controller has led to 30% in water savings. The interns are also investigating using non-potable water sources, such as rainwater or storm water run-off, to feed the irrigation system. Even the Kentucky bluegrass is being examined and possible alternatives determined for upper and lower Mammoth.

GA Tech interns (left to right) Molly Nelson, Emily Woods, Michael & Angela Harris get out and explore Yellowstone.

In addition to helping Mammoth use less water, the Tech team examined ways to improve water management by looking at storm water flow patterns. Currently, storm water from Mammoth is channeled to the campground, causing erosion. Interns mapped Mammoth's storm water system and are developing alternative plans to manage storm water runoff. They will give park management a report on options for permeable paving surfaces, which could reduce runoff, as alternatives to asphalt in Mammoth.

The interns also plan to investigate renewable energy feasibility in Mammoth, looking at wind, water and solar power potentials. Even the old solar thermal water heaters on the mission 66 buildings in lower Mammoth will be assessed to determine how to best use the Park's current infrastructure.

-Molly Nelson and Emily Woods,
Research Interns
Georgia Tech

Carpet=Sustainability and Economics

(from pg. 1) plastics through U.S. collection, processing, and manufacturing facilities. He also wrote a report, providing a snapshot of how the example set by Yellowstone Carpet Project demonstrates how different organizations can work together to address challenges faced by both the domestic manufacturing sector and the waste management sector.

Partnerships, like the Yellowstone Carpet Project, can help increase domestic recycling rates and reduce the amount of virgin petroleum-based materials used by replacing them with materials made from the recycled content. The Yellowstone plastic used to produce carpet for this project consisted of those used to package beverages like soft drink, water, and juice bottles. This is called PET, or number 1, plastic. Demand from U.S. manufacturers for this type of recyclable plastic has been increasing rapidly over the last few years, and is currently outpacing supplies. As a result, domestic manufacturers are having difficulties sourcing enough material in the U.S.

A study by the National Association of PET Container Resources (NAPCOR) revealed that in 2009 only 28% of all PET bottles consumed in the U.S. were recycled. Seven out of every 10 plastic PET bottles were sent to landfills, incinerators, or ended up as litter. In addition, of those PET bottles that were recovered for recycling in 2009, 56% were exported to buyers in foreign countries. These factors contributed to U.S. manufacturers not being able to purchase enough recyclable materials from domestic sources to meet demand for products and packaging made with recycled content.

By retaining post-consumer recyclable PET bottles in the U.S. recycling value chain instead of shipping them overseas, the Yellowstone Project helps increase the economic benefits of recycling for U.S. companies.

Yellowstone Environmental Protection Specialist, Jim Evanoff, inspects carpet made with Yellowstone plastics.

Wren's report indicates that increasing the stream of recyclables going to U.S. processors not only gives them the opportunity to sell more upcycled material, it also makes it more economical for them to process it. Since recycling industries tend to have high fixed costs due to expensive capital investments in processing plants, trucks, and other equipment, increasing the use of this equipment through thorough recycling decreases the costs-per-unit of output.

By showing how organizations can work together to help ensure that we collect and retain more recyclables for U.S. manufacturers, the Yellowstone Carpet Project also shows how they can increase a recycling company's profitability. This can also lower the cost of using recyclable content in products we buy domestically. As a result, we can provide economic and environmental benefits to a much wider portion of the U.S. population than if that recyclable product were sent to the landfill or exported after being collected in the United States. Yellowstone plastics will continue to be sent to UTT, who will turn them into carpet for use in the U.S.—a little Yellowstone in each square foot.

-Matt Wren,
Research Scientist
Georgia Tech

"Partnerships... can help increase domestic recycling rates and reduce the amount of virgin petroleum-based materials used."

Want to read more about Matt's adventures? Check out the full article on Sharepoint: Yellowstone Carpet Project.

Yellowstone's Green Team

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National Park Service Mission Statement

"…the [National Park] Service thus established shall promote and regulate the use of Federal areas known as national parks, monuments, and reservations which purpose is to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations."

- NPS Organic Act, 1916.

We're the *Green Team* Again!

In an effort to improve our identity and to achieve park goals, the Environmental Management Team (EMT) has changed its name to the Green Team and has reorganized. At April Focus Days, park management approved the restructuring of the Green Team and the Team's new charter.

The group is reaching out to find representatives from each division and each district. There's still a chance for you to be involved! We're still looking for representatives from Old Faithful, Canyon/Norris, and Madison/West. We hope that including a wider range of participants in environmental management efforts will improve communication with staff and provide multiple perspectives on projects.

The Green Team is dedicated to leadership in sustainable management and operational practices in Yellowstone and will promote an environmentally responsible culture, sustainable initiatives, and projects and programs that help meet park goals. Did you know that Green Team meetings are open for all park employees to attend? We meet once a month on the first Thursday of the month. If you are interested in being involved, be sure to get supervisory approval and contact your division/location representative for time and location. You can find our charter, work plan, and application form on the Green Team Sharepoint site. While you're there, check out past editions of Greenstone, eHints, and other great greening info. Can't wait to see you at the meetings!