

SNOHOMISH CONSERVATION DISTRICT

The NEXUS



Community Solves Drainage Problem

By Ryan Williams, Habitat Restorationist

Thomas and Kris Solatka, of Rivershore Farms, live in the Snohomish River floodplain within Dike District 13, west of Snohomish. They raise chickens, geese, and ducks, and take care of a single pony on their small acreage. The couple also grow grass for hay and pasture, are recreating a forest, and manage some of their land as a sanctuary for wildlife.

In fact, the Solatka's primary reason for purchasing the farm in 2002 was to try to be good stewards of the land, river and slough. According to Kris, "We were in our late 40's and felt quite brave about the hard work and worries riverside farming would present."

Having a sense of community with helpful neighbors also made a difference. "The neighbors were friendly and willing to teach us about the area as we spent the first year digging up and cleaning up old debris and junk, planting trees, and learning the art of hay making," said Kris. Little did Kris and Thomas realize how much that community cooperation would come in to play later on. Out their front door is a grand view of the Snohomish River. Summertime flows on the Snohomish are serene, but when winter comes around, the river takes on a different personality altogether.

Dikes and Drainage

Historically, the Snohomish River's raging, rushing waters from winter rain and spring snowmelt swell its banks and overtop the dikes. The Solatka's farm and house, as well as many others in the floodplain, are protected by a dike and drainage system that routes water away from key properties while letting it flow into dormant fields. This system lets water drain out of the area in an orderly manner as floodwaters from the river recede.

A few years ago, commissioners from Drainage District 13, (charged with protecting landowners, maintaining dikes, and facilitating improvements) realized they needed to replace an aging tide-gate and pumping station and improve the area's drainage. The backbone of this drainage district is Swan Trail Slough, which runs parallel to the Snohomish River and flows into Ebey Slough.

Grant Provides Funds

The Drainage District applied to American Farmland Trust's Pioneers in Conservation grant program to purchase fish-friendly replacements. In 2006 and 2007, grant funds allowed the Drainage District to replace a rusted, steel tide-gate with a new lightweight one and install a fish-friendly pump. All that remained was to improve the drainage pattern within the District. This is where the Solatkas entered the picture.



The new 'recycled' bridge keeps water from backing up and improves fish passage in Swan's Trail Slough.

The Solatkas owned property that contained a blockage, which included a crushed culvert full of sand and gravel that caused water behind it to back up, turning many fields into ponds. This also limited fish passage and reduced water quality in the ditches.

Drainage District 13 asked Snohomish Conservation District to help them since Conservation staff provide engineering assistance on tide-gates, pumping stations and drainage improvements. District engineers and habitat specialists surveyed the blockage and provided a bridge design that would use lower-cost, recycled materials. This appealed to the Solatka's land-use ethic.

Recycled Railcar

The base supports for the bridge were made from large cinderblocks already on site, leftover from a past construction project. The bridge itself is a modified railcar deck, with its wheels and railcar attachments removed. Capable of carrying forty tons and relatively cheap to buy and install, the railcar deck was an ideal choice for supporting farm equipment.

To improve safety and repair a flaw in the rail deck, a new deck was installed made from re-milled timber salvaged from a demolished theatre. These recycled materials were less expensive

to purchase and were perfect for a farm where conservation is key.

Neighborhood cooperation and 'roll-up-your-sleeves' help, including neighbors sharing equipment, planting trees around the District's pump house, sheltering animals during floods, and offering food and helpful observations has been steady. Kris writes, "The idea of land ownership and community cooperation are daily fare here as part of Diking District 13, where we have a common stretch of river as a resource and a threat, and where we work together to care for the fragile infrastructure on this side of the valley."



Conservation District Engineer Ryan Bartelheimer surveys the slough prior to construction.

Winter 2009

Serving Snohomish County
and Camano Island

A Call for Action

SCD has two volunteer board positions open early in 2009. One position is appointed by the Conservation Commission, the other is elected by the public. Supervisors on the District Board help direct the operation of the District, review policies, direct staff, and facilitate the assistance that landowners can receive. Both positions serve for three years. Call the office at 425-335-5634, ext 4 to learn more or visit the Conservation Commission website for application materials: <http://www.scc.wa.gov>.

Join Us!

Come join District supervisors and staff as we recognize outstanding landowners and partners at our annual Open House. Refreshments provided.

Thursday, Feb 12, 2009

1:00 - 4:00 PM

Awards at 2:00 PM

Tree & Shrub Sale

Order plants now for spring planting! The District's 24th annual sale will be held on March 6 and 7, 2009 at the fairgrounds in Monroe. Check out the full-color brochure and order form on our website: www.snohomishcd.org New this year - an on-line order form.

Inside

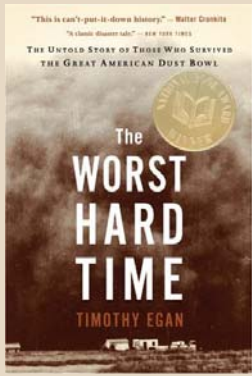
- ❖ Book-Worst Hard Time
- ❖ Rein in The Rain
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Read Alayne Bickle's review of 'The Worst Hard Time', a fascinating book about the dust bowl era, on page 2.

The Worst Hard Time

Book Review by Alayne Blickle, Executive Director of Horses for Clean Water



Those of us who strive to manage our farmlands in a conservational and sustainable manner will find The Worst Hard Time dramatic and convincing. This non-fiction piece is about the Dust Bowl, or Dirty Thirties, and farming techniques of the American Great Plains states. Timothy Egan weaves a compelling story, told through the experiences of survivors, about the many contributing factors to the Dust Bowl — poor farming techniques, government policies which encouraged westward expansion and extreme drought. It details the enormity of the situation; some dust storms traveled from the Great Plains of the Texas Panhandle all the way to Washington D.C. and New York City, turning day into night in those major Eastern cities.

The Dust Bowl was an ecological and human disaster, affecting more than 100 million acres and hundreds of thousands of families. Racing at 50 miles an hour, dust storms blasted paint off of houses and covered fences, trees and buildings with soil that often drifted into 50-foot dunes. The static electricity of these storms could knock a person down or stop a car. Children died of dust pneumonia. Livestock suffocated on dirt. Women hung wet sheets over windows, taped doors and stuffed cracks with rags. None of this really worked as housecleaning, in this era, was performed with a shovel. Starving, the people of this period pickled tumbleweed, and ate yucca roots and road kill.

The Worst Hard Time is also about the formation of the Soil Conservation Service (now the Natural Resources Conservation Service) and its local allies, Soil Conservation Districts, and other works of the New Deal Era, which helped to slowly heal the wounds of the land and bring about change. The importance in this book for farm and ranch owners of today is not only a look at history but to recognize the failings in agricultural practices of this era and learn from past mistakes so we aren't doomed to repeat them.

Timothy Egan, a national reporter for the New York Times, is the author of five books and the recipient of several awards, including the Pulitzer Prize. The Worst Hard Time won the 2006 National Book Award for nonfiction.



Above - a Midwestern main street, circa 1935, as a dust cloud moves into town.

Hugh Hammond Bennett surveys erosion damage in Michigan. He spearheaded the movement to begin the Soil Conservation Service and served as the agency's first chief.



To purchase this book and support Horses for Clean Water, visit their website and go to the book review in the November newsletter box.

www.horsesforcleanwater.com

Reign in the Rain — with a Rain Garden

by Paul Smidansky, SCD Civil Engineer



A raingarden helps filter pollutants and keep them from harming aquatic life.

Since 1960, Puget Sound's population has grown by about 25,000 people - the same as adding another Lynnwood every year! As land has been converted from forest to developed urban landscape, scientists have observed an alarming decrease in the Sound's water quality and its freshwater tributaries.

They've also noticed that stormwater is reaching streams and rivers much quicker than normal, and that much more rainwater is directly entering streams and rivers following rain storms.

The consequences of changing our natural forest-based rainwater filtration and absorption system are serious, far-reaching and diverse:

- ❖ Rain flowing across parking lots, driveways and yards flush contaminants such as motor oil, antifreeze, metal dust and fertilizers into storm drains. Many storm drains discharge directly into our rivers or to the Sound — without any treatment. This pollutes our streams, rivers and Puget Sound, and harms all aquatic life, from insects to fish to whales.
- ❖ Rain flowing through typical stormwater pipes is moved more rapidly and efficiently to our streams and rivers than it does in nature. This creates intense, high volume pulses of water, called flash floods, that quickly tear away stream banks and scour stream bottoms, putting streamside property at risk and destroying salmon habitat.

Fortunately, there is a widely accepted, cost-effective, and ecologically-friendly alternative to our gutter to drainpipe system. This alternative system, broadly classified as Low-Impact Development (LID), seeks to imitate how nature processes rainfall in a forest.

Toolbox a Good Starting Point

Among the numerous techniques in the low-impact development 'toolbox', rain gardens are particularly effective in handling rain. Originally tried in the Chesapeake Bay Region of Maryland around 20 years ago, rain gardens perform wonderfully and provide dramatic benefits for a relatively low installation cost with minimal complexity.

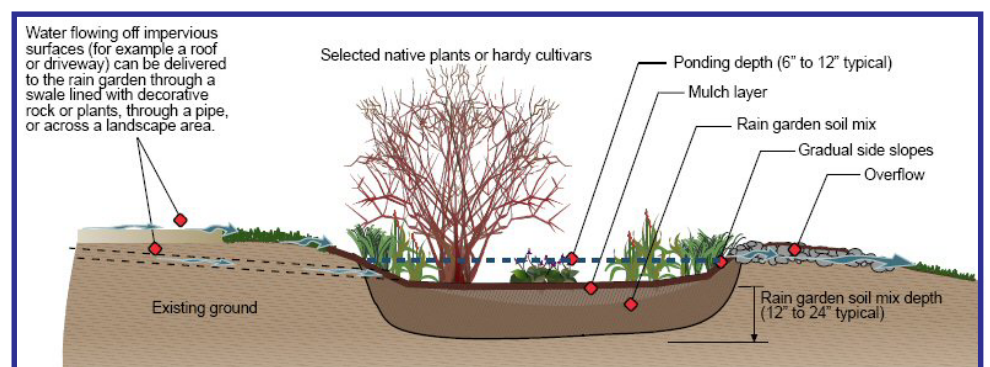
If you've been thinking about beautifying your property, a lovely rain garden can give your yard an attractive new focal point and help Puget Sound at the same time, thanks to a grant from the Washington State Department of Ecology. To protect water quality, homeowners in the Stillaguamish Watershed (including Stanwood and Arlington) and on Camano Island can now receive FREE educational support and technical assistance from the Conservation District to design and build low-impact development solutions, like rain gardens. Conservation District staff are well-trained in designing low-impact development projects.

What Exactly is a Rain Garden?

Rain gardens can be any shape, although they're usually round or oval, with a one to two-foot depression in the middle filled with a special soil mix that can soak up water like a sponge. Specially-chosen plants located throughout serve both functional and aesthetic purposes.

The main parts of a rain garden are the inlet, ponding area, mulch layer, amended soil layer, and overflow. Rain gardens are designed to be easily constructed and maintained.

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The Secret Life of Soils

Did you know there are more living creatures in a shovelful of soil than human beings on the planet? Yet more is known about the dark side of the moon than about soil. These are just a few of the fascinating facts visitors can learn from the new temporary exhibition *Dig It! The Secrets of Soil*, open July 19 through Jan. 3, 2010 at the Smithsonian's National Museum of Natural History in Washington D.C.



The 5,000-square-foot exhibit reveals the complex world of soil and how this hidden ecosystem supports nearly every form of life on Earth. It is sponsored by the Soil Science Society of America and the Nutrients for Life Foundation, which is underwritten by The Fertilizer Institute.

Dig It! includes interactive displays, hands-on models, videos and soil samples. Curious visitors can get the dirt on this little-known subject through audiovisual and interactive components, a set of interactive soil stratigraphy blocks, a crime scene investigation video focusing on the processes of decay, and a computer kiosk about state soils.

Visitors can also explore soil found in their own backyard and in obscure locations, with 54 soil samples representing each U.S. state and territory and the District of Columbia, as well as soil maps and touchable soil models from around the world. In doing so, visitors will discover a world teeming with life. In fact, so many organisms contribute to the health of soil that scientists have not even named them all.

"This is the most ambitious exhibition ever dedicated to soils, a resource as important to life on Earth as water and air," said Patrick Megonigal, soil scientist for the Smithsonian Environmental Research Center, which is located in Maryland near the Chesapeake Bay. Megonigal is the exhibition's lead curator.



Antibiotic mold, *Penicillium notatum*.

Dig It! shows how every type of soil is unique. Color cards help visitors unveil the stories behind soil samples.



Enlarged photo of the layers in a soil horizon.

"Soil has an impact on climate change and our carbon footprint, among other important environmental issues," said Gary A. Peterson, president of the Soil Science Society of America.

After examining soil close up, exhibition visitors can step back and see the "big picture" with a world map and interactive stations that present the connection between soil and global systems. Models demonstrate the roles of soil around the house and the formation of soil in commercial and residential construction, dams, playing fields, neighborhoods, roads and in food production. An evocative video explains soil's role as a "secret ingredient" in such household goods as medicines, food, wine, textiles, paint, cosmetics and pottery.

"The exhibition paints a remarkable picture of soils and their role as a reservoir of life," said Ford West, The Fertilizer Institute and Nutrients for Life Foundation president. "Preserving the health of soils around the globe is critical to our ability to produce nutritious foods for future generations."



A teaspoon of good farm soil contains up to 1 billion bacteria (more than 4,000 species).

Following its showing at the National Museum of Natural History, *Dig It!* will travel to 10 museums across the country through 2013 under the auspices of the Smithsonian Institution Traveling Exhibition Service. There has been an effort to bring this great exhibit to Seattle. Stay tuned to find out if it makes it! Check the exhibit out at:

<http://forces.si.edu/soils/index.html>.

More information about the National Museum of Natural History is available at www.mnh.si.edu or by calling Smithsonian Information at (202) 633-1000, TTY (202) 633-5285.

Article taken from a publication by the Smithsonian Institute.

Dairy Farmers Wrestle with Fall Waste

by Alan Shank, Certified Farm Planner

Recently, Washington State Department of Agriculture inspectors became aware that some dairies were applying manure just after corn harvest and prior to seeding a grass cover crop. The Department says cover crops generally don't need additional nitrogen after corn harvest, and newly applied nutrients will leach into ground water or run into streams and rivers.

Benefits of Grass Cover Crops

Grass cover crops are used for many reasons: to reduce wind and water erosion, increase soil organic matter, suppress weeds, manage moisture, provide an additional forage crop, and take up excess nutrients that corn did not use. Species used should maximize uptake of nutrients. Most often its Italian ryegrass or triticale.

Newly planted fall grass doesn't grow as rapidly and use up as many nutrients as established grass. This is especially true if grass-seeding is delayed due to a late corn harvest. The nitrogen left untouched by the corn crop is used by the cover crop, which prevents it from leaching or running into a nearby stream or river. This meets the management goal to mop up excess nutrients left by corn. A laboratory soil test should still be taken, however, just prior to corn harvest so you can determine if applying manure to a grass cover crop is warranted and if so, how much.

Benefits of Relay Cropping

Relay cropping holds a bit more promise with its ability to receive (minimal) waste applications in the fall. Dr. Shabtai Bittman developed relay cropping in British Columbia in the early 1990's. It has the same goals as using cover crops — with some advantages. Italian ryegrass produces a quality forage crop. Seed is sown into

growing corn between the three and six-leaf stages and establishes before corn produces a complete canopy. Once the corn has leafed out, Italian ryegrass grows very little and doesn't compete with the corn for water or nutrients. When corn is harvested, the ryegrass is already in place. This reduces problems with late plantings or wet soils. It may also have advantages should flooding occur, since established ryegrass has a developed root system. A two-ton/acre/year Italian ryegrass crop can remove as much as 160 lbs of nitrogen/acre/year under ideal growing conditions; 60 lbs in fall and 100 lbs in spring. Once again, perform a soil test prior to corn harvest to determine if waste applications are justified.



Ryegrass growing between rows of cornstocks. Photo courtesy Conservation Council of Canada. www.soilcc.ca.

Is Relay Cropping Enough?

Relay cropping has a greater ability to receive waste applications than cover crops, providing all the advantages of cover crops while providing quality forage. However, the implications are that a 100 percent corn cropping system - with or without cover or relay crops, may not be able to handle the amount of manure that a dairy would need to apply to empty its storage pond.

Washington State Agriculture inspectors will be looking closely at soil test results and application rates on corn ground followed by cover and relay crops. Farms whose fall soil tests indicate high nitrogen levels will be considered out of compliance with dairy nutrient management plans and may face enforcement action. Sources for this article and more on relay cropping can be found at <http://www.farmwest.com/> and on the Soil Conservation Council of Canada website <http://www.soilcc.ca/>.

Announcements

Starlight Beach Walks in Snohomish County

Night-time beach walks are an adventure not to be missed!

Shorelines turn surprisingly magical when creatures are uncovered during night-time low-tides. Immerse yourself in the chilly ambiance of a starlit beach walk while exploring new wonders as the water recedes. Join WSU Beach Watchers, City of Edmonds, Snohomish County Marine Resources Committee and People For Puget Sound for an evening of discovery at:

Friday, January 9 Kayak Point County Park, 8 – 9:30 PM
Friday, February 6 Edmonds Olympic Beach, 7 – 8:30 PM

Bring flashlights, rain gear and wear warm layers. Sturdy footwear or rubber boots are recommended. This event is free. For information, contact Chrys Bertolotto, WSU Snohomish County Extension Beach Watchers at (425) 357-6020, chrys@wsu.edu. The parking fee at Kayak will be waived.

County Living Expo & Cattlemen's Winter school

This was a popular event last January - the classes were packed. There will be classes for beginning farmers, horse enthusiasts, experienced homesteaders and youth who want to experiment with their own enterprise.

It's an all-day event on:

Saturday, January 31, 2009
Stanwood High School
7400 271st NW

Classes include:

- Cider Making
- Growing Berries
- Equine Nutrition
- Cisternology
- Wool Processing and Marketing
- On-farm Composting
- Introduction to Fiber Goats
- In-Home Cheesemaking and more!

Visit the website at <http://skagit.wsu.edu/countrylivingexpo.htm> for details.

State Veterinarian to Speak at January Cattlemen's Meeting

January 21, 2009, 7:00 PM

Log cabin at the Evergreen State Fairgrounds, Monroe

The Snohomish County Cattlemen's Association will host State Veterinarian Dr. Leonard Eldridge as guest speaker at their January meeting. Dr. Eldridge and other local veterinarians will address the recent outbreak of Malignant Catarrhal Fever (MCF) that killed 21 cattle, many of which were shown at the Puyallup Fair this fall. The disease is carried by sheep - there is currently no known cure or vaccination for prevention. The meeting is open to area cattle owners who would like to hear the latest on the outbreak of MCF in Western Washington.

Rain Gardens

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Rain gardens can range from small, individual units capturing rain from one roof or driveway to a neighborhood-wide network of rain gardens managing rain from acres of paved surfaces. While they can be located in a variety of settings, they are best placed where the underlying native soil can absorb the surrounding area's rainwater.

How a Rain Garden Works

During a storm, rain from roofs, driveways, and/or parking lots travels on land or through a pipe into the rain garden, where it seeps into the amended soil. Once the water finds its way to the bottom and reaches uncompacted native soil, it gets absorbed into the ground below the rain garden, ultimately becoming part of a slow but steady subsurface flow of water. High intensity rain storms may pond water on the rain garden's surface for a time, but this should drain within 24 hours as rainwater is slowly absorbed into the ground.

Two Great Benefits

This seeping, filtering, and absorbing do two important things:

- ❖ Most contaminants are filtered out as water creeps through the mulch and soil layers.
- ❖ Because water in a rain garden moves slowly downward through the various layers, streams and rivers are spared from flash floods. Water is also absorbed by rain garden plants (typically low-maintenance native plants), which helps reduce the total volume of water leaving the area.



The best part of all is that rain gardens require very little care and attention, providing years of beauty for your yard and protection for Puget Sound.

To learn more about the FREE low-impact development services offered by Snohomish Conservation District, contact Paul Smidansky, SCD Civil Engineer, at 425-335-5634 ext 111 or paul@snohomishcd.org.

2009 Forestry Series

Coached Forest Stewardship Class

Washington State University Extension - Snohomish County - is now registering people for their next Forest Stewardship **Coached Planning Class** in Northwest Washington. The class will be Tuesday evenings February 24 – April 21, 2009 at the Snohomish County Extension building in South Everett.

This 10-session, practical, hands-on course enables forest landowners to prepare their own forest stewardship plan with guidance and coaching from natural resource professionals. It also includes a valuable Saturday field trip in March. The cost of the class is \$150; enrollment is limited to the first 30 ownerships, so register early.

For details and registration information, visit <http://snohomish.wsu.edu/forestry/CP09Everett.htm>. You may also contact Kevin Zobrist, Forest Stewardship Educator, at 425-357-6017 or by email at kzobrist@wsu.edu.

2009 Advanced Forest Stewardship

Registration is also open for the next **Advanced Forest Stewardship** class. This class is offered exclusively to graduates of the Coached Planning class. The six-week shortcourse will run Monday evenings, April 27 – June 1, 2009, at the Snohomish County Extension building in South Everett.

The class will include six Monday evening classes, three Wednesday evening computer lab sessions, and a Saturday field day. Topics include advanced wildlife and biodiversity, advanced silviculture, hardwood management, managing a timber sale, controlling invasive species, forest inventory, using the Landscape Management System, forest finance, taxes, and more.

Cost is \$100 per household/ownership. For details and registration information, visit <http://snohomish.wsu.edu/forestry/advancedCP09.htm> or call 425-357-6017. There are only a few spaces left in this class, so register soon.



Three Awards Won



Monte Marti, left, and Duane Weston, center, were honored as Supervisors of the Year by the Washington State Conservation Commission Executive Director Mark Clark in October.

Acting Conservation District Manager Bobbi Lindemulder, and Supervisors Duane Weston and Monte Marti, were recently honored at the Northwest Area Meeting of the Puget Sound Conservation Districts. Supervisors Weston and Marti have given countless hours of their time seeking stable, long-term funding for the District in the form of an assessment. Ms. Lindemulder has been instrumental in getting the District on track for the future, addressing difficult operational and budget issues, and restoring stability. The awards were presented by Mark Clark of the Washington State Conservation Commission.

Snohomish Conservation District

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Monte Marti, Vice-chair
Wiard Groeneveld
Adam Farnham
Mark Craven

Associate Members

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