

# SNOHOMISH CONSERVATION DISTRICT

## The Nexus



## The Buzz About Bees

Article and photos by Donna Gleisner, *The Written Edge*

### What do bees, bats, butterflies, wasps, hummingbirds, beetles, moths and flies have in common?

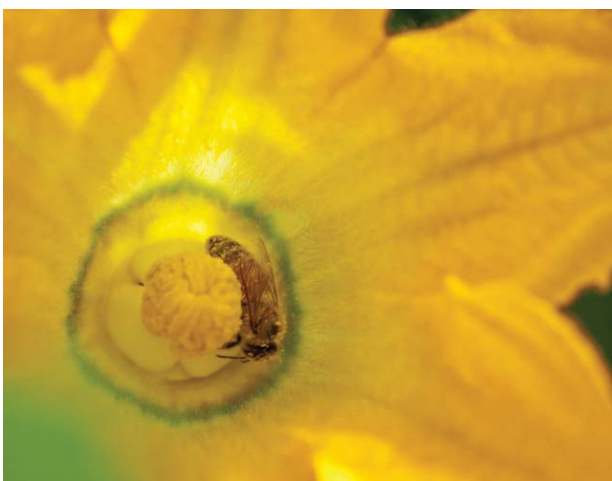
*Hint: they keep our world - and us - alive with an abundant mix of fruits, vegetables, flowers, fragrances, fuel, flavors, drinks, drugs, spices, greenery and natural beauty.*

#### Answer...

They are all pollinators - the re-newers of life - ferrying pollen from one flower to another as they search for food, mates or shelter. In doing this, pollinators fertilize female plants so they can produce seeds and fruits that grow into so many of the things that we eat, drink and use every day.

Globally, at least 1,000 different species of plants grown for food, beverages, fibers, spices and medicines need to be pollinated by one or more of these critters. Without this giant, humble work force, you could say 'goodbye' forever to apples, blueberries, strawberries, cranberries, chocolate, coffee, melons, peaches, potatoes, greenhouse tomatoes, pumpkins, vanilla and almonds, just for starters. Not to mention most fibers (cotton, flax), edible oils, alcoholic beverages, medicines, dietary supplements and herbal products.

About 75 percent of the world's flowering plants depend on live pollinators to reproduce (versus wind pollination). This includes more than two-thirds of the world's food crops. Basically, every third bite of food you take exists thanks to insect pollinators. Bees are the main pollinator for most commercial crops and wildflowers in the U.S. and Canada.



A zucchini flower gets pollinated by this little bee.

### One-fifth of Bee Species Live in North America

Currently there are at least 400,000 pollinator species in the world, half of which are insects. Approximately 20,000 species of bees (yes, just bees!) live on the planet; one-fifth of them (4,000) are native to North America (Canada, Mexico and the U.S.)

While the act of pollination is not intentional by any animal, most bees do intentionally collect pollen for their use and have specific structures on their bodies to contain it. Many butterflies and birds move pollen around only because it sticks to their bodies as they collect nectar from flowers.



A fly is hard at work pollinating a bright yellow flower.

In the United States alone, pollination by (managed) European honey bees produces roughly \$15 billion worth of products every year. The U.S. Fish and Wildlife Service estimates that the value of pollination services provided by native bees and other native wildlife is even greater. For some commercial food crops, researchers have learned that bumblebees and other native bees are more efficient pollinators than the European honey bee. The total value of all pollination services annually in the U.S. could easily top \$40 billion.

### History of the Honey Bee

The most actively managed pollinator (and honey and wax producer) used worldwide is the non-native European or Western honey bee (native to Africa, Asia and Europe). The earliest known domestication of this bee is from ancient Egypt. It arrived on U.S. soil in the 1600s with European immigrants.

*"The little things that run the world, including bees, butterflies, bats and hummingbirds, go unnoticed and unprotected until it is sometimes too late."*

-entomologist Stephen Buchmann,  
co-author of *The Lost Pollinators*

A better understanding of how pollination worked and how to manage pollinators led to the commercialization and worldwide expansion of many crops. For example, growing figs didn't become commercially viable in California until the 1890's, when fig growers determined that a tiny wasp was the pollinator and imported them. But growers also had to provide the wasp with its proper habitat and conditions to synchronize wasp life cycles with the fig crop. By 1998, California's fig production was worth nearly \$10 million, second only to Turkey's.

~ continued on page 2

## Winter 2012

### Serving Snohomish County and Camano Island

#### District to Hold Election

An election for a seat on the Snohomish Conservation District Board of Supervisors will be held on Tuesday, March 20, 2012 at the Snohomish Conservation District office, 528 91st Ave NE, Lake Stevens. Polls will be open from 2 PM to 6 PM. Registered voters who reside within the Conservation District boundary (most of Snohomish County and Camano Island) are eligible to vote.

For more information on elections, call District Election Supervisor Cam Allen at 425-335-5634, ext. 102.

#### Open House and Awards

The District's annual Open House and Awards Recognition will be held on Thursday, March 22, 2012 at Legion Hall in Everett. The event starts at 4 PM with a speaker, and awards will begin at 5 PM. The event honors those who have made great progress in protecting natural resources, volunteered at District events, and partnered on programs and grants.

#### Annual Conservation Plant Sale March 2 & 3, 2012

Evergreen State Fairgrounds  
Monroe

[www.snohomishcd.org/plant-sale](http://www.snohomishcd.org/plant-sale)

## Inside

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- ❖ Events



Shovels ready for volunteers at Brierwood Park. See story on page 5.

# The Buzz About Bees - *continued*

Of the estimated 135,000 beekeepers in the U.S., only about one percent of them own a commercial operation. These beekeepers travel extensively with their hundreds to thousands of honey bee colonies, providing most of the country's pollination services.

## Pollinators in Peril

In many parts of the world, pollinators are in decline; almost half of the insect extinctions documented worldwide have been pollinators. In the last 25 years, local ecosystem disruptions and declines in certain insect pollinator populations have been reported on every continent except Antarctica.

The number of managed honey bees is half of what it was in the 1950s. The decline began in the 1980s, when a non-native parasitic mite was accidentally introduced. The honey bee continues to decline due to diseases, pests, the low price of honey and most recently, Colony Collapse Disorder. This created a shortage of bee colonies in the U.S. and led to imports from Australia. It was the first time that honey bees had to be imported since 1922, when the federal Honeybee Act banned imports for fear they would spread non-native pests (still a vital concern).

The U.S. has lost more than 50 percent of its managed honey bee colonies in the past ten years. While colonies have been declining, crop acreage needing to be pollinated continues to increase. Luckily, recent research has shown that native bees make a significant contribution to crop pollination when enough nearby native habitat is available.

While the loss of the non-native honey bee is alarming, many of our wild native bees are also disappearing. For example, from about 1995 to 2005, the yellow-banded bumblebee went from being the most abundant bee in northern Wisconsin to one of the least abundant. In Oregon, the Franklin's bumblebee likely went extinct during the same time frame.

Other native bumblebee populations have also declined, although more field research is needed to determine the causes and extent. In addition to the reduction in bee numbers, some butterflies, bats and hummingbirds are also showing declines in their populations.

Pollinators are what scientists call a 'keystone' species, meaning that a lot of other species (small to large, plant to animal to human) depend on them for their lives, directly or indirectly. As pollinators around the globe disappear, the effect on native plants and wildlife, the global food web and human health can be disastrous.

## Causes of Decline

The possible causes for declines in wild pollinator populations are:

- ❖ Fragmented, degraded and destroyed habitats
- ❖ Exposure to agricultural pesticides
- ❖ Air pollution
- ❖ Competition from invasive plants and animals
- ❖ Introduced diseases and parasites from non-native insects (*infection from latest threat, the varroa mite, is fatal to most honey bee colonies*)

In addition, in some areas of the U.S. insect pollinators are either not able to find 'their' plants at all (due to land clearing), or not at the right time of year (before or past flowering time due to fluctuating weather patterns). In other places, migratory routes have been disrupted due to development and urbanization and may be affecting hummingbirds, nectar-feeding bats and some butterflies and moths.



A bee (literally) deep into the pollination process.

## Awakening to the Crisis

Because public support is vital to get funding for research and monitoring (which may in turn lead to species protection) we know far more about a few big, breathtaking animals like tigers, bears and wolves than we do about the hundreds of thousands of insects that exist. But as far as which animals are essential for life to continue on this planet, insects (and many other backboneless creatures called invertebrates) win hands down.

Pollination starts a chain reaction where a tiny insect fertilizes a flower that produces seeds or fruit that a larger animal eats, that in turn might get eaten by an even larger animal, or by us. The trouble is that most people simply do not know how supremely important insect pollinators are to the survival of ALL life on earth.

The study of plants and their animal pollinators is rather recent. Interest was sparked in the 1990s due in part to the 1996 book, *The Forgotten Pollinators*, by Buchmann and Nablan. It called for a national policy on pollination and pollinators.

Since 1998, declines in managed bee colonies (Colony Collapse Disorder) have taken place in China, Egypt, Europe, Latin America, North America and Japan, potentially becoming a global issue. At the same time, declines in some threatened and endangered native insect pollinators led to fears of a pollinator crisis. As a result, things started happening internationally and in the U.S.

The North American Pollinator Protection Campaign began in 1999, and has held an annual conference since 2001. The number of pollinator-related publications has risen steadily since 2000. A ten-day Bee Course on the bees of North and Central America has been offered once a year since 2003. The website 'Butterflies and Moths of North America' launched in 2006. The federally-sanctioned Pollinator Week began in June 2007, and the Journal of Pollination Ecology came online in 2010.

For the first time in history, the 2008 Federal Farm Bill specifically mentioned pollinators, and officially recognized the vital role that pollinators play in the United States' agricultural industry. The bill proposed that funding be increased for research on honey bees and native bees, and mandated that conservation programs support habitat restoration and management for pollinators.

However, very few pollinator species are monitored in North America. Lack of research in the U.S. has critically hindered our knowledge about the status of most pollinators. The European Union, on the other hand, has been so concerned that they have invested more than \$20 million investigating the status of their native pollinators. Unfortunately, researchers there have scientifically documented pollinating insect declines and extinctions.

Watch for the Spring 2012 edition of the NEXUS for more on pollinators and what you can do to help them. See the box at left for plants you can add to your landscape that will provide important food sources for pollinators.

## Plants That Will Attract Pollinators

### Trees

Big-leaf Maple  
Cascara  
Pacific Crabapple  
Pacific Madrone  
Serviceberry  
Vine Maple

### Shrubs

Blue Elderberry  
Evergreen Huckleberry  
Indian Plum  
Kinnikinnick  
Low Oregon grape

### More Shrubs

Nootka Rose  
Ocean Spray  
Orange Honeysuckle  
Pacific Ninebark  
Pacific Rhododendron  
Purple Coneflower  
Red-flowering Currant  
Red Huckleberry  
Red-osier Dogwood  
Salal  
Snowberry  
Yarrow



Many plants that pollinators need can be found at the District sale ~ March 2nd and 3rd ~ in Monroe. Learn more at [www.snohomishcd.org/plant-sale](http://www.snohomishcd.org/plant-sale)



# Gardening with a Purpose ~ Top Five Ways to Put the Rain to Work in Your Yard

by Stacy Aleksich, Low Impact Development (LID) Specialist

While rain gardens may not be for everyone (or every yard), there are a lot of other great ways to beautify your landscape, reduce your maintenance and costs, and put the rain to work in your yard! Bog gardens, rain barrels, amending your soil, filter strips, terraces, buffers, berms, splash blocks, layered plantings, permeable pathways . . . the list goes on.

## Why Bother with the Rain?

Putting the rain to work on your property will lead to healthier, more beautiful plants and lawn, and a landscape that is easier to care for. Many practices encourage reducing or replacing your lawn, therefore giving you more time to sit back and enjoy your yard.

By managing rain where it falls, you are also protecting our local streams and Puget Sound. When rain runoff leaves your property it makes its way to the nearest waterway. This rain picks up pollutants along the way and carries them downstream, eventually to Puget Sound. Slowing the rainfall and putting it to use in your yard cuts pollution and mimics nature.

## Top Five Tips

Here are our top five simple, relatively inexpensive ideas to help you and your yard and protect our special Northwest environment:

**#1 Use Splash Blocks** – Redirect your downspout to a splash block so the water runs downslope and away from your foundation. Make sure the block empties onto your lawn or into a planting bed, where rain water can be best absorbed and used. (Don't let water pool next to your foundation.)

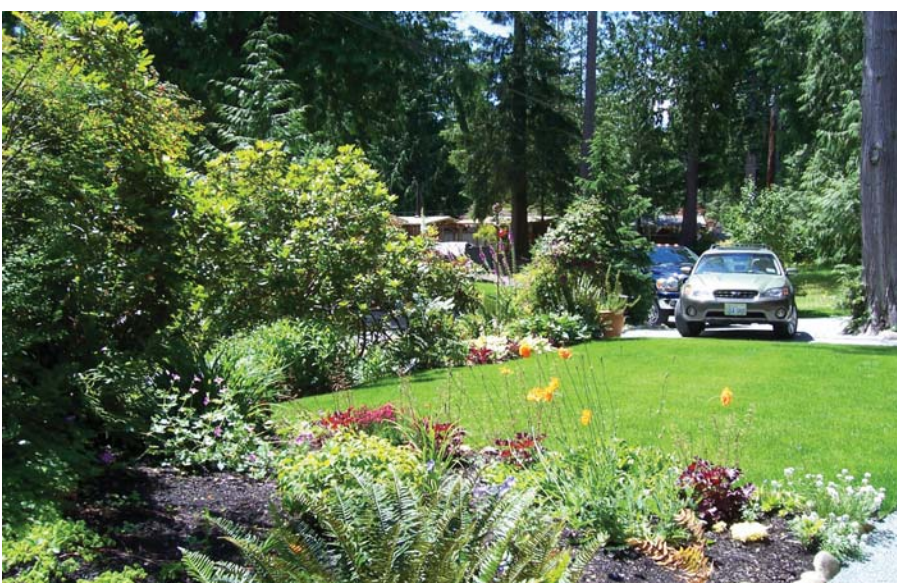


A splash block directs water.

**#2 Collect Rain Water** – Save rain water for the summer when we need it most! Rain barrels fill up quickly, so consider installing two or three, and be sure to direct the overflow away from your foundation. Better yet, get a cistern (shown below right) or tank – they come in all shapes and sizes. Have you seen our new brochure on rain water collection? Check it out on the Publications page of our website [www.snohomishcd.org](http://www.snohomishcd.org).



**#3 Add Plant Buffers** – Slow the rain down once it's hit the ground, and put it to use before it runs down the storm drain, or down the road. Planting small shrubs and perennial plants along the edges of your yard will enhance your landscape, increase your property value and capture some of that rain, allowing it to soak into the ground.



A colorful buffer borders this yard. Photo by Innovative Landscape Technology.

**#4 Amend Your Soil** – For better grass and less summer watering, add a layer of compost to your lawn (1/4 inch) and planted areas (1 - 2 inches). This will help your soil absorb and hold rainfall, leading to a healthier lawn and plantings,

and reduce your water bill and need for fertilizers. Do this annually in the late spring/early summer (May) or as needed.



Amended soil (left) and non-amended soil (right) along a walkway. Courtesy of Innovative Landscape Technology.

**#5 Layer Your Plants** – “Layering” your landscape means you put the tallest plants in the back of your planted area, the shortest in the front, and mix other heights in between. Besides creating interest in your garden, this provides great habitat for wildlife, and also catches rain drops so they don't become runoff. The extra shade also helps your soil hold moisture during our dry summers.



This photo shows layered plants in a natural setting. Courtesy of Innovative Landscape Technology.

Consider these tips for a better yard, less maintenance, and a healthier Puget Sound. For more information on these ideas, contact Stacy at [stacy@snohomishcd.org](mailto:stacy@snohomishcd.org) or 425-335-5634, ext 112.



## Annual Conservation Plant Sale

March 2 & 3, 2012  
Open to the Public  
Pre-order by February 8

**Plants for:**  
Rain Gardens  
Wildlife Habitat  
Erosion Control  
Visual Screens  
Windbreaks  
Reforestation  
Bees & Butterflies  
Holiday Trees  
Streams & Wetlands  
Groundcover



Learn more at: [www.snohomishcd.org/plant-sale](http://www.snohomishcd.org/plant-sale).

# Are Ruts in Your Road Wrecking Your Ride?

Kelly Cahill, Civil Engineer

How many times have you driven on your farm road, driveway or forest road gritting your teeth while dodging potholes, ruts, washboards or soft spots. You keep saying, "I've got to fix this road!" and drive on, or maybe you throw some crushed rock in the potholes. But the problem persists.



*We can help you get from this kind of road . . .*

*(Photo courtesy of PEMCO Webster & Stevens Collection, Museum of History & Industry)*

Maybe the rough ride and almost never-ending mud are enough to convince you that your road needs help. If not, consider these reasons to maintain it:

- ❖ **Your road may deteriorate to the point when it will no longer get you home with a minimal amount of vehicle wear and tear.**
- ❖ **Properly maintained roads are less harmful to our natural resources, particularly fish and other creatures in our streams and rivers.**
- ❖ **Not convinced yet? Roads are expensive. Maintaining your road will keep you from having to invest a lot more money later to totally rebuild when it becomes intolerable or impassable.**

Don't you deserve a smooth, solid, safe road to drive on? Below are some tips to restore and maintain your driveway and road, as well as how to contact the Snohomish Conservation District to get FREE technical assistance for solving your road drainage problems.

## Manage Your Drainage

A properly built and maintained road has a smooth and compact running surface. The MOST important key to getting your road to the 'smooth and compact' state is managing drainage properly. It's difficult to over-state the critical effect that proper and improper drainage can have on your road.

Even if you don't mind driving through mud and ruts, runoff from improperly drained roads is one of the leading sources of sediment in our local streams and rivers, which all eventually run into Puget Sound. Sediment in the water makes it difficult for fish to breathe (imagine breathing in a smoke-filled room), and smothers fish eggs to death.

Proper drainage structures can collect and divert surface water (rain, snow) that runs down from slopes above the road, as well as rain that falls onto the road surface itself. Sub-surface water, such as springs and seeps, can be dealt with in a number of ways, but generally this situation requires a field investigation to determine what's best for the specific location, soils, etc.

Surface water runoff that flows from slopes above your road should be captured in a ditch and diverted to stable ground in a well vegetated or rock-lined location. Examples include 'ditch-outs' (turning the ditch away from the road), culverts, and rock-lined drive-able dips that move water directly across the road surface.

## Clean Ditches and Culverts

If your road system has ditches and culverts, clean them regularly by removing obstructions and sediment, and make sure that water flows freely through them. Roadside ditches should not be scraped down to soil unless vegetation in the ditch is restricting the flow. Scraped roadside ditches can dump significant amounts of sediment into streams. Ditches with grass or other small plants growing in them, on the other hand, stabilize ditch sections by reducing erosion (plant roots hold soil in place).

**SCD 4**

Indications that a drainage system is improperly sized, installed or maintained include eroded ditches, large scour holes at the outlet end of culverts, and over-topping of culverts and ditches on a regular basis. These can become serious and expensive problems, so please call us if this is happening on your property.

## Shape the Road Surface

Once you've effectively dealt with surface water runoff, you need to turn your attention to the road surface itself. The surface must be shaped to shed water towards the ditch or to the outside edge of the road. A flat road surface collects water which creates potholes and soft spots.

Think of a table top -- when you knock over a glass of water, much of the water stays on the table. If that table was a road, the water would soak into the roadbed. Then each time you drive over the road, your vehicle is 'pumping' fine materials to the surface and pushing the rock down through the base of the road. This is how potholes are created.

Now if you tip the table just a bit to the side, all of the water runs off. If your crushed rock road has a steep grade (like a boat ramp), chances are you will start seeing some rutting after the road surface has been smoothed and reshaped to drain.

If left unchecked, these minor ruts turn into 'canyons', a glaring reminder of the crushed rock that used to be on your road that is now deposited at the bottom of the hill or into the nearest stream.

Thinking of the table again, imagine picking one end up to represent a steep road and spilling a glass of water down it. Even if you tip the table to the side again while you've raised up one end, water will flow a long way down the table before it runs off to the side. This is exactly what happens on many of our roads.



*. . . to this kind of road.*

It is almost impossible to keep a steep road with a rocky surface free of surface ruts -- unless you use a structure (such as a rolling dip) to intercept the water flowing on the surface and direct it off the road. We can assist you by designing structures that will intercept and move water across your road surface before that water gathers enough volume and energy to create troublesome or costly ruts.



## Call the District for Assistance

If your road wasn't adequately built and it turns to mud after the first rain, then it's probably time to add a new layer of crushed rock or repair the road's foundation. This type of work is generally outside the scope of road maintenance and may require the advice of an engineer or experienced contractor to provide the necessary remedy.

The material and equipment required to reconstruct driveways and roads can be expensive, so make sure you get an engineer's advice before starting. Snohomish Conservation District has staff with solid experience in road maintenance, repair and construction. Contact Kelly Cahill at 425-335-5634,

ext 111 or [kelly@snohomishcd.org](mailto:kelly@snohomishcd.org) with any questions regarding your existing road system, or for help planning and designing a new road on your property.

# Solving Driveway Drainage Problems

Kelly Cahill, Civil Engineer



Alan's driveway before.

Are you tired of bouncing down your driveway? You're not alone. Many homeowners have problem driveways that easily develop ruts. Eroded driveways and ruts not only cause headaches for residents, they also cause mud and sediments to flow downhill into nearby waterways. This mud and sediment can cover salmon nests (called redds), smothering the eggs and causing turbidity (cloudy water).

Turbidity measures how much light (passing through water) is reduced by suspended matter (sand, silt, clay, metals). This suspended matter in our creeks and lakes reduces photosynthesis, decreasing the growth of food that fish and other aquatic life depend on.

A common problem with steep, unpaved driveways is erosion of the roadway surface. Given enough time, erosion can move amazing quantities of rock and soil (the Grand Canyon being an extreme case). One of the District's planners, Alan Shank, recently resolved an erosion problem on his 120-foot long driveway in Mukilteo.

On Alan's property, water collects from adjacent slopes and a parking area, and flows directly down his driveway. One of the challenges to many of these roads is moving water off the road surface as quickly as possible before ruts develop. Due to the road's steep grade, more traditional methods to control road surface drainage such as drainage dips and out-sloping are generally not effective.

Rubber diverters have been used by natural resource agencies, such as the US Forest Service, for road surface drainage in these types of situations. They intercept running water that flows down the road and divert it to a stable outlet before enough water collects on the road surface to cause erosion. The diverter extends above the road surface approximately three inches. Since it is made of conveyor belt material it is easily driven over by passenger cars to big trucks. These were recently installed on Alan's driveway. He built the diverters from materials on his property; and they were installed by Chris Crouch of EarthFirst Construction in about two hours. We will monitor them this winter to determine their effectiveness.



Chris Crouch of EarthFirst Construction and District Engineer Kelly Cahill use a plate compactor to compact crushed gravel just below the rubber diverter.



With one deflector in (foreground), another is being installed below. Surface water is diverted to the pasture on the left. With Puget Sound directly below this neighborhood, it's crucial to control erosion.

## CURB Those Creekside Weeds

by Ryan Williams, Habitat Restoration Specialist

A lot is changing at Brierwood Park in the City of Brier. This fall, a group of volunteers helped Snohomish Conservation District staff plant 1,400 trees and shrubs in a wetland and along Scriber Creek, to improve this 30-acre public park at the city's north end. The plantings are the first step towards restoring the park's wetland and creek by re-creating much needed habitat for native fish and wildlife. Snohomish Conservation District and the City of Brier are combining their resources to complete this important project.

Earlier this year, the Conservation District received a grant from the National Fish and Wildlife Foundation, through their Community Salmon Fund, to restore three acres along Scriber Creek in Brier. While the goal of this grant is to restore habitat, the grant will also help promote a new program called Creating Urban Riparian Buffers or CURB.

Originally developed by the Walla Walla Conservation District, CURB works with landowners to protect urban streams from pollution by removing weed plants and planting native trees and shrubs, thus improving the health of the stream. It will also create essential shelter and food for native fish and wildlife. "The great thing about this program is that it offers urban landowners design advice, native plants and help organizing volunteer labor - all free!" said Ryan Williams, District Habitat Restoration Specialist.

As a kickoff project for this new program, Brierwood Park was identified as needing restoration. First opened in the 1980s, the park includes a large grass public use area and a 15-acre beaver pond. Both Scriber and Golde Creeks run through the park as well. There is also a publically-owned natural area that follows Scriber Creek through the Brierwood neighborhood all the way to the city limits. The public use area is popular among Brierwood families with children and dogs, affording them a front row seat to on-going habitat restoration.

District staff surveyed the park's streamside area and identified two and a half acres of land choked with weedy non-natives -- reed canary grass and blackberry. To restore this land with native trees and shrubs, we cut back blackberry using gas-powered trimmers.

These boots know how to dig!



This team quickly got the hang of planting.

Realizing that we needed more help, the City of Brier let us 'borrow' the Monroe Department of Corrections work crew to mow reed canary grass. With native plants purchased from local nurseries, we were ready to plant by mid October. During the first planting event, 26 volunteers (18 from Edmonds Community College) planted 700 trees and shrubs in the wetland on Scriber Creek's north side. It was a nice day, but the digging was tough! Edmonds Community College made this event a sponsored project, allowing students to receive community service credit.

Twelve volunteers came to our second (rainy) event in November, resulting in another 400 trees and shrubs planted on the creeks south side. The remaining 300 plants were installed by an intrepid volunteer the following week.

As we continue restoration efforts over the next 10 months, we will be gearing up for another planting in late winter or early spring, preparing for summer maintenance, and installing habitat structures. The structures include five tall perches (donated by former District Board member Duane Weston) for hawks, eagles and other birds of prey. These raptor perches provide much needed resting and viewing spots while hunting for rodents. Raptors help reduce the vole and mice populations so they don't eat all the newly planted trees and shrubs. If you own property along a creek in Snohomish or Island County or are interested in the Creating Urban Riparian Buffers program, please contact Ryan Williams at 425-335-5634, ext 116 or rwilliams@snohomishcd.org.

# 2011 Was a Banner Year!

Snohomish Conservation District has been busy and 2012 looks to be even busier! We've now grown to a staff of sixteen! Here is just a sampling of projects, events, and programs that your conservation district has accomplished in the past year.

## Low Impact Development - Stormwater

- 28 events and presentations
- Nine rain gardens installed in three cities (Lake Stevens, Everett, Snohomish)
- Three volunteer planting events
- Low impact development tour for Sound Salmon Solutions for the PS I Love You camp

## Public Outreach and Education

- 33 events, fairs and workshops
- Two tours of Monroe Correctional Complex Vermicomposting Unit
- Fall Partnership Breakfast
- Spring Open House and Awards Recognition
- New Media Outlets: Facebook, Flickr, and MailChimp Enews
- Realtors Workshop

## Youth Education

- Hosted the 2011 Washington State Envirothon
- Taught natural resource classes in 22 schools
- Reached 1,645 students
- Assisted with one Eagle Scout project
- Participated in several Earth Day events
- Assisted the Stillaguamish Tribe with Hatchery Tours
- Worked on events and projects with Imagine Children's Museum

## Restoration

- Kicked off the CURB program (see story on page 5)
- Planted 2.5 acres at Brierwood Park
- Planted 3.5 acres of riparian habitat along Woods Creek
- Restored 10.7 acres along Fish Creek
- Completed 37 acres of tree planting/riparian enhancement
- Assisted the Mukilteo Backyard Habitat group with their certification

## 2011 Conservation Plant Sale

- 55,000 plants sold
- Hosted a variety of booths, two Mason bee presentations and over 40 volunteers.

## Farm Planning & Engineering (Jan-Sept only)

- 10 compost and waste storage structures
- 10 acres of brush management
- 500 ft. of hedgerows
- 16 acres of pest management
- 5 acres of waste water treatment
- 2,226 acres of nutrient management
- 25 acres of waste utilization
- 40.5 acres of irrigation
- 26 acres of prescribed grazing
- 11 roof runoff management systems
- 7.5 acres of drainage water management
- 4,200 ft. of livestock use-exclusion/fencing
- 12 heavy use area structures
- 220 ft. of underground outlets
- 5 acres of pasture and hayland planting
- 1 manure transfer system
- 1 waste separator
- 64 technical letters
- 132 soil tests



*Alan Shank explains Best Management Practices to some budding farmers.*



*Posing at the Imagine Children's Museum in Everett are District staff (left to right) Stacy, Caitlin and Kailyn.*



*A father and daughter check out the District's model farm display at an Earth Day event in Marysville.*



*The photo above shows a muddy slope leading down into this barn.*



*Now mud-free after a gravel pad was installed and drainage added.*



*This student is learning to test turbidity with a secchi disk.*

## Local Farm Receives Funds for Manure Bins

Half-Track Farm in Stanwood received funds from Snohomish County to install water quality improvements along with free technical assistance from the Snohomish Conservation District. That incentive funding comes from Stillaguamish River Clean Water District fees.

In 1993, the Snohomish County Council created the Stillaguamish River Clean Water District to "provide a comprehensive approach to managing and regulating surface water in order to respect and preserve the county's rivers, streams, lakes, and other waterbodies". Landowners within the Clean Water District pay fees so the County can provide water quality management services in the Stillaguamish River Basin.

In addition to services provided through the Conservation District, this special funding can also assist landowners, community groups and/or local agencies with small scale, on-the-ground projects to improve water quality for shellfish on private or public property. Projects can include fencing livestock away from streams, lakes and wetlands, planting a vegetated buffer or filter strips near water, and implementing manure management plans.



*New manure storage bins funded by Clean Water District fees.*

For more information, and application materials, see: [http://www1.co.snohomish.wa.us/Departments/Public\\_Works/Divisions/SWM/Work\\_Areas/Water\\_Quality/CWD/discretionary\\_fund.htm](http://www1.co.snohomish.wa.us/Departments/Public_Works/Divisions/SWM/Work_Areas/Water_Quality/CWD/discretionary_fund.htm).

# Plant It and They Will Come...Hungry Wildlife, that is

By Leif Fixen, Resource Planner

As a forester, one of the most frustrating challenges I face is protecting newly planted trees from hungry wildlife. Years of work and growth can be wiped out in the blink of an eye by some of our most beloved woodland creatures.

Deer, rabbits and rodents are the primary culprits that eat plants in the Northwest. These animals are referred to as browsers: they eat the shoots, branches and leaves of trees and shrubs (as opposed to grazers that primarily eat grasses). Each browsing animal prefers to dine on different plant species and parts of the plant. These preferences can help you determine who is munching on your landscape and what the most appropriate deterrent should be.

## Who Eats What

- ❖ Deer prefer the tips of branches for the new growth and can reach up to five feet high. Deer-browsed branches have torn edges.
- ❖ Rabbits prefer to eat the bark, buds and twigs of trees and shrubs. They girdle larger trees in a diagonal pattern. Rabbit-browsed branches have a clean, sharp angled edge (often rabbits browse to maintain their habitat, not just to eat).
- ❖ Rodents (mice, moles, voles) prefer to eat the bark of young trees and shrubs close to the ground, girdling them as they go.

## Your Defense Plan

Once you have identified your culprit, you can start formulating a 'plan of attack', or more appropriately a 'plan of defense'. Factors such as animal population densities, availability of other food sources, and winter conditions (depth of snow, amount of native vegetation, etc.) can affect how hungry wild animals are in your area, and consequently how much your plants will be nibbled on. The simplest defense is planting undesirable or browse-resistant plants (for a list of plants, go to: <http://green.kingcounty.gov/gonative/Article.aspx?Act=view&ArticleID=18>).



These protectors deter voles from girdling tree trunks.

If planting animal-resistant plants isn't for you, developing a plan to protect your tasty and vulnerable trees is a must. Methods to protect trees fall into three broad categories: barriers, repellants and extermination. Combining practices from all three categories often creates the strongest defense and is known as IPM or Integrated Pest Management.

### Barriers

Barriers physically prevent browsers from reaching the trees you want to protect. They include plastic tubes, cloth and plastic wraps, plastic mesh tubes, chicken wire and fences.

Fences often cost the most and, in a forest setting, require a large amount of maintenance. Fences are best used on a small scale -- surrounding a garden, nursery or small orchard. Fences or barriers can also be created with undesirable plant species. You can plant a thick hedge just around your vulnerable trees to prevent animals from getting near them. Or, you can plant the entire perimeter of your property with undesirable species, discouraging animals from getting onto your property at all.



These protectors are secured with a fence post.

### Repellants

Repellants don't harm browsing animals, instead they make the plant or planting site unpleasant to the animal. This method includes sprays applied to the plants that either smell or taste bad, installing predator poles (an artificial high perch for hawks and owls), and reducing habitat for browsers to hide in. For vineyards and orchards, tilling the soil can be an effective option for reducing plant-girdling vole populations. Voles tunnel and nest under thick layers of grass and brush; tillage destroys these nests.

### Extermination

Sometimes it is necessary to reduce the population of browsing animals on your property. This can be accomplished by increasing the number hunters on your land (for deer and rabbits), setting out traps (for rabbits and rodents), and poisoning (for rodents). Be sure to check with local authorities for the necessary hunting and trapping permits (<http://wdfw.wa.gov/licensing/trapping/index.html>). Caution needs to be taken, especially when using poisons and traps, to avoid harming people, pets and other wildlife. A better option might be accommodating wildlife, see this link: <http://wdfw.wa.gov/living/nuisance/>.



Deer can reach the top branches.

### More Tips from Leif

Avoid planting monoculture rows of trees – browsers like deer will start at one end of the row and eat their way down the row of tasty vegetation. Also, plant an undesirable species in the same hole as your vulnerable species (such as Sitka Spruce and Cedar), then prune out the unwanted plant (i.e. the spruce) once your tree is taller than that the deer can reach. These are just a few ways to protect your landscape from hungry critters. Creating an integrated pest management plan that uses a variety of these practices will give you the strongest defense. For more information, contact Leif Fixen at [leif@snohomishcd.org](mailto:leif@snohomishcd.org) or 425-335-5634, ext 110.

Type of Animal Control		Effectiveness on...			Cost	Pros	Cons
		Deer	Rabbits	Rodents			
Barriers	Plastic Tube (rigid)	Medium	Medium	Medium	High	Reusable	Requires staking, prone to wind damage, must be removed before tree gets too large
	Plastic Tube (blue roll-up)	Medium	Medium	Medium	Medium	Inexpensive	Some assembly required, prone to wind damage, can be blown apart
	Plastic Mesh	Medium	Medium	Medium	Low	Cheap, little wind damage, easy to cut off of plants	Doesn't protect from rodents
	Plastic Wraps	Medium	Medium	Low	Low	Inexpensive, adjustable, can protect against antler rubbing	Doesn't protect from rodents
	Chicken Wire (wrapped around base of plant)	Low	High	Low	Medium	Reusable	Assembly required, doesn't protect from rodents
	Chicken Wire (attached to adjustable stakes)	High	Low	Low	High	Reusable, can be adjusted to protect the top of tree as tree grows	Must be staked well to prevent buck deer from destroying
	Fencing	High	Low	Low	Very High	Protects a large area	Expensive to install, must be maintained
Repellants	Spray Repellants (Deer Away, Plant Skid, Seadust)	Medium	Medium	Low	Medium	Easy to apply, not visible	Wears off, must be reapplied often - often after every rain
	Predator Poles	Low	Medium	Medium	Low	Easy to build and install, natural control	Surrounding vegetation needs to be mowed or reduced in size
	Habitat Control	Medium	Medium	Medium	Low	Natural control	High maintenance
	Undesireable Companion Planting	High	Low	Low	Low	Natural control	Companion plants must be removed in the future
	Tillage	Low	Low	Medium	High	Also controls weeds	High maintenance
Eradication*	Hunting*	Medium	Medium	Low	Low	Can be eaten as food	Hunting license required
	Trapping*	Low	Low	Medium	High	Can easily track number of animals being removed.	License/permit required, must pay close attention to traps, occasionally capture other animals.
	Baiting with poison*	Low	High	High	Medium	Rodents can bring poison back to nests	Can poison natural predators and other animals

\* Please check with WA Department of Fish and Wildlife

# Upcoming Events

## 2012 Country Living Expo & Cattlemen's Winterschool

Saturday, January 28, all day

Stanwood High School

This increasingly popular event offers more than 150 livestock and country living classes along with a great lunch! Classes include everything from beekeeping to pasture management to woodcarving. Call 360-428-4270 ext. 0 or visit <http://skagit.wsu.edu/CountryLivingExpo>.

## Snow Goose Festival

Saturday and Sunday, February 25 & 26, all day

F. Norgaard Center and various locations, Stanwood/Camano

Tours around Stanwood and Camano Island along with booths and great talks. Learn more at: <http://www.snowgoosefest.org/Home.html>.

## Snohomish Conservation District Open House

Thursday, March 22, 4 PM - 6 PM

Legion Hall, Everett

Come help us celebrate the people who are making a difference on their own farms and properties and meet folks at the forefront of conservation and green living. We will have a guest speaker, awards, and refreshments!

## Garden Affair - Classes in the Stillaguamish Grange

Saturday, April 7, 10 AM - 4 PM

Stanwood-Camano Fairgrounds, Stanwood

For the first time, we are opening the Stillaguamish Grange during the Garden Affair for some great classes and speakers. Nicole Hopper, from Taylor Shellfish, will speak about the many facets of farming for shellfish. With Port Susan Bay and South Skagit Bay so close, it will be fun to learn how shellfish farming cleans the water and provides food. We will also have classes on gardening, making your own rain barrel, composting, and how to add an attractive rain garden to your landscape.

## Farm and Livestock - Get Ready for Spring

Saturday, April 14, 11 AM - 12 PM

Skagit Farm Supply, Stanwood

Are you ready for Spring? Learn from Snohomish Conservation District farm planner Alan Shank about tips to help make life on the farm a little easier. Lots of great take-home materials and time for questions.

## Composting with Caitlin Price

Saturday, April 21, 11 AM - 12 PM

Skagit Farm Supply, Stanwood

Compost and other organic materials play an important role in building healthy soil and growing vibrant plants. Learn how to make your own and how to use it to the best advantage.

## Fencing Talk and Hands-on Fence Building

Saturday, April 28, 11 AM - 12 PM

Skagit Farm Supply, Stanwood

Learn how to build an effective fence, make corners and maintain them. There will also be a hands-on fencing demo to follow at a local farm.

# Stormwater and Low Impact Development Events for 2012

For more information on these events, contact Stacy Aleksich at [stacy@snohomishcd.org](mailto:stacy@snohomishcd.org) or 425-335-5634 ext 112.

## Rain Garden Tour

March 10, North Everett

Exact locations to be announced

## Garden Affair Grange Classes

- Making your Own Rain Barrel (1 PM - 2 PM)

- Rain Gardens for Your Yard (2 PM - 3 PM)

Saturday, April 7th, 1PM - 3 PM

Stillaguamish Grange at the Stanwood-Camano Fairgrounds

## Arlington Centennial Trail Rain Garden

Workshop and Planting Day

April - Date to be announced

## Mill Creek Natural Yard Care first three Wednesdays in April

For Mill Creek residents. Registration will be open to others after March 23.

## Gardening With a Purpose

Composting/Building Healthy Soils

Sustainable Garden Design



Watch for more events at [www.snohomishcd.org/events](http://www.snohomishcd.org/events)

# Nine Rain Gardens – and Counting!

by Stacy Aleksich, Low Impact Development (LID) Specialist

As you may have seen in the last issue of the NEXUS, we were involved in installing seven rain gardens in North Everett, and a large rain garden in Lake Stevens this summer. Our ninth rain garden in 2011 was installed in October along the new expansion of the Centennial Trail in Snohomish. While nine gardens is a small drop in the bucket towards the goal of 12,000 rain gardens in Puget Sound by 2016 (a goal outlined here: [www.12000raingardens.org](http://www.12000raingardens.org)), staff at the District are excited about these accomplishments.

In Snohomish, an eye-catching and functional feature was added to the soon-to-be completed section of the Centennial Trail. A rain garden, brimming with healthy new plants, was constructed to filter rain runoff from Third Street and the trail, before that water enters the nearby Snohomish River.



This rain garden was designed by Conservation District engineer Derek Hann (shown in front of the completed garden, above), with funding from the Department of Ecology. Jennifer Carlson from Haven Illustrated provided the planting design and local artist Lisa Dentz created the educational sign.



Happy rain garden helpers.

On Make-A-Difference Day, October 22, local volunteers joined the Snohomish Parks Foundation, Snohomish Conservation District, Snohomish Parks Board, and City of Snohomish employees to plant and mulch the new rain garden.

This project was made possible by a variety of partnerships and generous local businesses. Plants were donated by Pacifica Nurseries and Storm Lake Growers. The Java Inn and Snohomish Bakery provided gourmet coffee and pastries. Columbia Bank donated funds for additional plants and supplies.

To learn more about putting a rain garden in your yard, contact Snohomish Conservation District at 425-335-5634 (Stacy at ext. 112 or Derek at ext. 119). See more photos of the rain garden and volunteers at <http://www.flickr.com/photos/snohomishcd/sets/72157627861602161/>.



This is a graphic of the interpretive sign that will soon be posted at the Centennial Trail rain garden in Snohomish. It was created by local artist Lisa Dentz.

# Snohomish Conservation District

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The NEXUS is published quarterly and distributed free of charge to residents of the District. Funding provided by Snohomish County Surface Water Management, Washington Department of Ecology, and the Washington State Conservation Commission.