



# HABITAT ACQUISITION TRUST

# RIPARIAN

## protection

## & stewardship

Bilston Creek Photo by Ted Hill

## Stewardship Series

Issue 4: Spring 2016

### Ayum Creek & HAT's Good Neighbours Program

In 1997, 4,100 ha of forest held by the Greater Victoria Water Board was protected as the Sooke Hills Regional Park. This was part of the visionary Sea-to-Sea Green Blue Belt, a corridor of protected green space linking Saanich Inlet in the east to Juan de Fuca Strait in the west. Around that time, land at the mouth of Ayum Creek was for sale. With the goal of anchoring the protected area to the sea, a partnership formed between HAT, The Land Conservancy (TLC), the Society to Protect Ayum Creek (SPAC), CRD, Mountain Equipment Co-op (MEC), and DFO to raise funds for its purchase. Thanks to support from hundreds of donors, this land is protected with a conservation covenant!

14-acre Ayum Creek property expanded the connectivity of this parkland into an important riparian area providing habitat for **chum and coho salmon** and **Olympia Oyster**. **Connectivity** between natural areas via green corridors is important because it allows wildlife to safely traverse contiguous natural habitat.

Returning to HAT's historic first land acquisition, we are launching the **2016 Ayum Creek Good Neighbours Project**. Through this project, HAT will work in the Ayum Creek watershed and neighbouring community providing information on land use practices that support healthy creeks and other ecosystems for future generations.

## What does a creek mean to you?

*A flowing body of water draining surface run-off, ground water, and carrying material between the land and the sea that provides freshwater, nutrients, and habitat supporting wildlife and humans.*

**1. Creeks, rivers, and streams are more than just the water you see flowing on the surface.** A creek is fed by all water that drains down from its expansive watershed. Creeks change seasonally in form and function. Some creeks naturally dry in the summer exposing the creek bed, and banks can change shape as the water naturally changes course. Logs or roots provide shelter to fish and aquatic invertebrates, and shade to keep water cool. These waters usually empty into an estuary carrying nutrients from upstream. Increasingly, our creeks also include pollutants, trash, concrete, and culverts, that impact their water and habitat quality. Not everyone lives by a stream, but we all contribute to what flows into them and are responsible to provide support for their well-being.

**2. The creeks in our communities require care to keep them healthy and restore their natural functions.** Making changes to drainage and flow can mean that a creek runs too low to support juvenile salmon. If woody debris and gravel is swept away, it can leave creek dwellers without proper

cover or food. A creek cannot support stream-dependent wildlife if runoff from our yards and gardens carries pollutants to its waters. Caring for local creeks means considering the downstream impacts of our everyday choices, restoring impacted waterways, and encouraging native wildlife to live alongside us.

**3. Healthy creeks are just as beneficial to us as they are to wildlife; preventing flooding, purifying water, and nourishing plants and animals like salmon and shellfish that sustain us culturally and gastronomically.** Natural waterways are visually attractive and important for enhancing the quality of life in a neighbourhood.

I'm sure you can recall discovering the magical world of creeks as a child, searching for insects in the shallows, watching as a frog hops nimbly in. Let's keep our waterways clean for future generations to appreciate. **With your support, HAT's Good Neighbours Program can work with your community to enhance backyard habitats and create more connected natural landscapes complementing our park system, together we can keep creeks flowing clean for salmon and invite hummingbirds, butterflies, and frogs to be our neighbours.**



Celebrating the permanent protection of Ayum Creek!

# Covenants & Creeks

Since the original purchase at Ayum Creek, HAT established 2 more covenants with CRD and TLC that connect to Ayum in 1999 and 2000. HAT has protected many other ecologically significant waterways in the region including Ruby Creek which extends the wildlife corridor to Witty's Lagoon.

Covenants are an excellent tool for landowners to ensure their creek remains for generations to come.



Ayum Creek Photo: Todd Carnahan

## So, what is a covenant?

A conservation covenant is a permanent, legal agreement that conserves all or a portion of a property. The landowner retains ownership of their land, while agreeing to protect or manage it in ways that respect and conserve natural features and ecological functions.

### With a covenant you can create a natural legacy.

HAT provides site visits and advice to landowners wishing to manage their land to enhance and protect natural values. We also work with landowners to permanently protect natural areas like the creeks, estuaries, and forests you hold dear. If you are interested in protecting or enhancing your property contact us: 250-995-2428 or hatmail@hat.bc.ca



A log overhang installed on Bilston creek to restore fish habitat.

# Riparian Restoration Strategies

By Dave Polster, Restoration Ecologist

Natural processes have been “restoring” riparian areas (eroding banks, transporting excess gravel, etc.) for millions of years. By observing how these natural processes work, we can pursue restoration efforts for sites that mimic and work with these time tested methods.

## Erosion

In most cases, erosion of stream banks ( in non-bedrock areas) can be traced back to a loss of riparian vegetation, and a subsequent loss of both root strength and water slowing effects provided by dense riparian cover. These services can be restored to stream banks using soil bioengineering systems explained below.



Demonstration of stream protection activities detailed below.

## Live Bank Protection

The photograph above shows a creek where the riparian vegetation has been removed with subsequent erosion of the banks. Two treatments are being used to address the problems. The wall of cuttings along the far bank (1) is a technique called **live bank protection**. These cuttings (willows) will sprout and grow, providing strong roots and shoots. The shoots will slow the movement of the water and the roots will reinforce the bank.

## Dense Live Staking

The other technique shown on the nearest bank of the stream is **dense live staking** (2). The cuttings are inserted about 1 metre into the bank so that the growing roots can reinforce the bank, while the stems will slow the high flows that overtop the bank. A dense stand of riparian willows will establish from both of these treatments.



Photographer: Ted Hill

A local landowner and participant in HAT's Good Neighbours Program proudly displays his Habitat Steward placard.

## Fresh Tips for Vibrant Waterways

There are many ways to become a Good Neighbour to a creek and a steward of nearby riparian areas:

1. Make your yard attractive to birds and bats for natural pest control
2. Dispose of unused paint, chemicals, and other waste correctly
3. Reduce water consumption, wells draw from natural water sources
4. Keep creeks shady: trees and shrubs keep fish cool and reduce erosion
5. Don't introduce invasives: use native plants and don't release pets
6. Avoid landscaping with plastic or paving as this forces rainwater to run into the creek quickly, rather than slowly releasing over time
7. First pull weeds mechanically, use organic weed control if necessary



### What degrades a creek?

In a healthy creek, trees and vegetation along banks provide food, regulate temperature, stabilize banks. Features of the creek such as logs, space between banks, gravel, and boulders create habitat diversity and facilitate oxygenation. In a degraded system, lack of diverse features like pools, bends, and natural flow results in reduced biodiversity and often, an overproduction of algae. As invasive weeds clog channels, lack of stabilizing plants and pathways near banks cause erosion, and urban run-off pollutes water, many species can no longer call it home.

Once an ecosystem has been heavily altered it's challenging to nurture back to a natural state. This is just one of many reasons to prioritize proactive measures that will protect and conserve wild spaces like creeks.

### Restoring degraded waterways

When returning a creek to its natural form and function, it is important to consider the historical influences human developments have had and how to balance the needs of locals with what is necessary to keep the creek functioning ecologically. Sometimes this means removing dams or structures that impede natural flow and alter creek composition. It may mean keeping infrastructure such as bridges while addressing the loss of gravel or log jams due to unnaturally strong flow.

You can be a part of riparian restoration by cleaning litter, removing invasive species, and supporting HAT as we care for special places like Ayum and Ruby Creek by becoming a volunteer, donor, or steward.



## 6 native plants for bank-stabilization

Plants to combat soil erosion and naturalize backyards. When soil is swept away, important nutrients are lost.



**Pacific Ninebark**  
(*Physocarpus capitatus*)

Prefers wet, open places like creek shores, attractive bark, excellent for securing slopes



**Red-osier Dogwood**  
(*Cornus stolonifera*)

Moist soil, part shade to full sun, crimson stemmed shrub, white berries, fall colours



**Sword Fern** (*Polystichum munitum*)  
Quick-growing cover for amphibians, best in shady slopes, adapts to sun



**Thimbleberry** (*Rubus parviflorus*)  
Light shade to full sun, edible berry bush, use for drier slopes and exposed creeksides



**Douglas-fir** (*Pseudotsuga menziesii*)  
Roots give stability and fish habitat, large coniferous tree, full sun to part shade



**Nootka Rose** (*Rosa nutkana*)  
Creates buffer against foot-traffic erosion, blooms invite pollinators, full to partial sun

When deciding on plantings along a stream or any natural area, it's key to have a look at the conditions and species present. In the case of degraded sites you can look to similar thriving ones for ideas.

# Creeks



Spawned out salmon end their journey at Ayum Creek.

## Stewardship Series #4

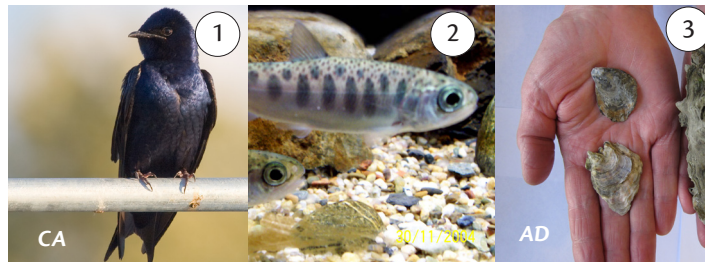
# Ayum Creek Estuary and Restoration

Ayum Creek is habitat for over 107 native plants and 80 bird species, as well as a historic clam harvesting site for First Nations. Like many waterways, Ayum Creek has been degraded due to a history of industry and urbanization. Some sources of degradation in this area over the years include a sawmill, concrete plant, hardening of the foreshore, and residential development. To aid in restoration, HAT and other local groups have conducted invasive species removals, plantings, monitoring, and reintroduced woody debris for spawning salmon.

Ayum Creek flows from its headwaters east of Mt. Manuel Quimper, through mixed forest and riparian habitat, and drains into Ayum Estuary. Its watershed, or the area of land that drains its water into the creek, is 13.7 km<sup>2</sup>. That's about the size of 7 Mt. Doug parks! Estuaries like Ayum are among the most biologically productive ecosystems on earth. As nutrient sinks, they support a wide variety of life. Estuaries receive nutrients as runoff, and in salmon-bearing systems, spawning introduces nutrient material to the creek, estuary, and beyond, as organisms consume and disperse the spent salmon.

**Your support and careful land management means that this and other riparian areas can be restored, resulting in stronger salmon runs, cleaner water, and greater diversity.**

### Ayum Creek Species Snapshot



1. Endangered Purple Martin (*Progne subis arboricola*) largest Canadian swallow.
2. Coho Salmon (*Oncorhynchus kisutch*) adults have silver sides, blue back.
3. At-risk Olympia Oyster (*Ostrea lurida*) the only oyster native to BC.

**Photo Credits:** AD - Alicia Donaldson, CA - C. Ajay, TC - Todd Carnahan, all other photos by HAT.

**Information Credits:** Adopting a Stream A Northwest Handbook (Yates 1988), Home Tips for Healthy Streams (Fisheries and Oceans Canada), www.cowsandfish.org, Ayum Estuary Preliminary Survey of the Extent of Olympia Oyster (Gbur et al. 2014), Streamside Native Plants (Wahlgren 2015).

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**For more information about salmon and riparian enhancement projects in the region contact:** Shawn.Kerr@dfo-mpo.gc.ca

## Support the cause to keep our waterways healthy!

Habitat Acquisition Trust is Victoria's local land trust, helping our community understand and care for wildlife and their habitat. Become a Creek Companion - Your support will protect riparian habitat for wildlife in Victoria.



**Yes!** I want to be a Creek Companion - to protect habitats including our fresh water. Here is my donation for HAT!

Please find enclosed my donation in the amount of \$ \_\_\_\_\_

**Please direct my donation towards:**

- Where Most Needed
- Habitat Restoration
- Land Protection
- Other:

Name(s): \_\_\_\_\_  
 Address: \_\_\_\_\_  
 City: \_\_\_\_\_  
 Postal Code: \_\_\_\_\_  
 Phone: \_\_\_\_\_  
 Email: \_\_\_\_\_

**PAY BY CREDIT CARD:**

# \_\_\_\_\_

Exp Date: \_\_\_\_ / \_\_\_\_ VISA MC AMEX  
 (mm / yy)

Signature \_\_\_\_\_

Circle Donation Type: Monthly / One-time

**Yes!** I would like to be added as a HAT member (free with donation of \$30 or more)

**Keep my donation anonymous**

Charitable # 889626545RR0001. All donations over \$20 are tax-receiptable. Make cheques payable to Habitat Acquisition Trust or HAT.