# Wetland Restoration on *Private Land*

**A primer for landowners who want to restore wetlands on their property**

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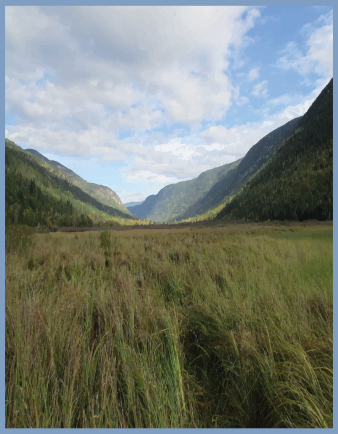
# Wetlands

## Far from Wastelands

Wetlands are an integral part of British Columbia's landscape. They include swamps, marshes, bogs, fens, and areas of shallow water along the edges of a lake or other body of water. These ecosystems have environmental, economic, recreational, and cultural benefits. They can provide important services including water purification and filtration, groundwater replenishing, wildlife habitat, flood control, climate change mitigation, shoreline stability, and offer communities with ideal locations to view wildlife. Even wetlands that occasionally dry up provide many benefits.

**A wetland has 3 main ingredients:**

1. **Water at or near the soil's surface**
2. **Hydrophytic (water loving) plants**
3. **Soils modified by the presence of water**



Wetland on Lower Little Slocan Lake

Unfortunately, wetlands are disappearing from our landscape. Over the last century many wetlands across Canada, including British Columbia, have been degraded or entirely destroyed, especially in populated areas due to development pressures and lack of awareness regarding their inherent value.

Since much wetland habitat is under private ownership, landowners have a unique opportunity to steward the province's natural spaces and maintain their value for future generations. This publication provides an overview of stewardship options and restoration opportunities that may be available to you.

*"No one owns land. We have a title that allows us to do certain things on that property, yet when we move on that land should be in better environmental standing than before."*

- Terry Halleran, Private landowner who restored wetlands on his property.

# Become a Steward

## Adopt a Wetland

It has been said many times that change at the community level is the most effective and long lasting. Landowners have the unique opportunity to contribute towards enhancing British Columbia's natural legacy by becoming a wetland steward of their property. Wetlands and adjacent riparian land (the lush green zone between the waterline and upland) are a low maintenance and cost effective way of encouraging a healthy, natural ecosystem that will be enjoyed by many animal species, including people!

As a property owner, you are carefully balancing private land use and development with caring for your local environment. By protecting the biodiversity on your property, you are helping to support the natural ecosystems of your region and giving yourself more of an opportunity to connect with your land.

**Did you know?**

**In Canada, domesticated cats kill an estimated 80 million songbirds a year. Managing pets responsibly can help conserve wildlife and species at risk.[1]**

There are many actions you can take to better care for your wetland habitat from now into the future, including:

- Serve as an "ambassador" for wetlands in your community by sharing information about their importance and leading by example.
- Protect existing sensitive natural habitats.
- Retain special features like basking logs, standing dead wood, and rock piles, which make great habitat for many species.
- Maintain "corridors" for wildlife to move through your property.
- Plant native species in your garden.
- Control invasive species and help prevent their spread.
- Restore habitat that has been affected by past land use activities and is no longer serving as an amenity.

1. Calvert, A. M., et al. 2013. A synthesis of human-related avian mortality in Canada Avian Conservation and Ecology. 8(2): 11

# Restore a Wetland, Create Beautiful Habitat

Don't have a wetland on your land or want more? You may wish to consider doing some restoration on your own or partnering with a conservation organization. For example, Heather Toles of Kamloops partnered with BCWF in 2010 to restore a wetland in her back yard. Since then, the site has been used by deer, bats, birds, amphibians, and even some listed species (Barn Swallow, Yellow-bellied Racer, Western Painted Turtle, and Rubber Boa).

In 2013, Tulaberry Organic Farms partnered with the Fish and Wildlife Compensation Program and the BC Wildlife Federation to restore a 1700m$^2$ wetland complex in Passmore, BC. The restoration has increased diversity and supports a variety of plants and wildlife.

Heather Toles proudly stands in front of her newly constructed wetland.

Landowner Gerry Nellestijn restored two wetlands on his property near Salmo in 2014. The following year, Gerry partnered with the BC Wildlife Federation to enhance these wetlands. Due to dyking of the Salmo River, the land's original floodplain and wetland capacity was degraded. The restored wetlands now support a number of waterfowl, frogs, moose, and deer.

In 2015, landowners Terry and Michele Halleran partnered with the BC Wildlife Federation to restore five wetlands on their farm in Meadow Creek, BC. The property was used for haying by Terry's Great-Grandfather and Grandfather many years prior, but a portion was always too wet to farm. The restoration will create cover and early spring forage for grizzly bears and ungulates. Amphibians and a wide variety of birds will also benefit from this restoration, including species of special concern. The Hallerans will be restoring even more wetlands in the future.

# Is Your Site a Candidate for Restoration?

Before restoring wetlands on your property, you should determine its restoration potential with a few questions:

- Were there wetlands on your site previously?
- Is there any evidence of historic draining such as ditches or underground drainage pipes?
- Does your site have water at the surface? If not, you can dig a small hole to see if water is near the surface.
- Are there clays in the soil? If so, you should be able to make a thin soil ribbon greater than 2 inches long. Clay soil can be modified to capture surface water.
- Is there healthy upland habitat adjacent to the site?
- Are there risks to neighbours or infrastructure on your property if you create a wetland?

If your site is a candidate, then you should be able to create a natural-looking, low cost wetland with one of the following techniques:

**Groundwater:** Exposing groundwater by removing or shifting soil. This technique does not require clay soils.

**Surface water:** By creating groundwater barriers (underground dams with clay), you can hold water back to create a wetland up slope.

**Liner:** If your water table is too deep, you may need to use a liner. If there is clay on site, you can make a natural liner to retain water. Otherwise, you will need to use an artificial liner.

Left: A property in Salmo, BC with little habitat value. Right: The site less than 2 months after a BCWF restoration. Nelson District Rod & Gun Club and the Village of Salmo currently steward the wetland.

# "What do I have to do?"

All of the projects on the previous pages were completed with the financial support of a number of generous sponsors, who are listed on the back of this pamphlet. Cost to the landowners was virtually non-existent. However, restoring wetlands will take some work. As a landowner you would be expected to:

- Sign an agreement that confirms your intent to protect the wetland. Agreements have various levels of commitment to suit your needs and help assure partnering organisations that their investment in nature is more secure.
- Provide in-kind (volunteer) support throughout the restoration process (ex. helping plan the restoration or providing photos and updates).
- Maintain the site should the need arise. (ex. removing invasive plants).

Contact the BCWF Wildlife Federation for more information on restoring wetlands on private land.

BC Wildlife Federation
101-9706 188th Street, Surrey, BC V4N3M2
(604) 882-9988 ext. 232 wetlands@bcwf.bc.ca

Within months, a restored wetland on Alex Berland's Passmore property (Tulaberry Farm) was teeming with life.

# "But what about mosquitos?"

A common misconception is that restoring a wetland will produce large amounts of mosquitos. In fact, the opposite is true. A healthy, well-vegetated wetland, especially those with shallow water, provides habitat for mosquito predators[2] such as salamanders and newts, frogs and toads, dragonflies, damselflies, water boatmen, water striders, whirligig beetles, backswimmers, giant water bugs, and diving beetles. Bats also frequent wetlands that are in open areas and can consume thousands of mosquitos a night. Most nuisance mosquitos breed in stagnant water that does not support predators, such as old tires, clogged gutters, and unattended bird baths. Installing bat boxes and swallow boxes have also been found to successfully suppress mosquito populations.

# Resources

There are a number of local and provincial organizations besides the BC Wildlife Federation that may be able to support you and explore options based on your unique circumstances. For example, you may wish to contact:

Ducks Unlimited Canada

Land Trust Alliance of British Columbia

Nature Conservancy of Canada

The Nature Trust of British Columbia

Other physical resources you may wish to explore are:

"Think Like a Duck: Basic guidelines for landowners wishing to build or renovate a pond for ducks." by Ducks Unlimited Canada

"Wetlands On My Lands: A landowner guide to restoring and maintaining wetlands." by Ducks Unlimited Canada

"Wetland Restoration and Construction: A technical guide." by Thomas Biebighauser

2. Indiana Department of Natural Resources. 2000. Did you know? ... Healthy Wetlands Devour Mosquitoes. The Woodland Steward. Spring 2000 Volume 9, Number 1.

This publication and the projects within were undertaken with the financial support of the Government of Canada and the following organizations:

Cette publication et les projets à l'intérieur ont été entreprises avec le soutien financier du gouvernement du Canada et les organisations suivantes:

WILDLIFE HABITAT CANADA
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Booklet produced by the BC Wildlife Federation's Wetlands Education Program. Content by Neil Fletcher and Jason Jobin.
Design by Eryne Donahue, 2015.