



The Land Steward

Preserving open space since 1977 Vol. 1 No. 3 • Winter 2014

Watershed Conservation-Wetlands

This may surprise you but every faucet in Bethel is connected to a watershed.

On pages 4 and 5 is the second of a four-part series addressing the environmental services of our watersheds and, in particular, our wetlands.

BLT Protects an Additional 17.55 acres!

But first, we would like to introduce our newest preserve, the Dibble Brook Aviary, a 17.55-acre parcel of wetlands located along Walnut Hill Road, donated by fellow Bethelite, Jeffrey Bruno. The preserve is a partially forested swamp that is located in Dibble's Brook watershed and feeds an unnamed small aquifer. This preserve serves as an important migratory stop for birds and is visited by a variety of raptors. We hope to install a bird-viewing stand in 2015.

Within a half-mile of the Dibble Brook Aviary is the Walnut Hill Nature Preserve. Comprised of 4.5 acres of wetland meadows, this preserve is located atop the Dibble's Brook aquifer.

These two seemingly unimportant parcels of land provide a variety of ecological services, including feeding downstream waters, trapping floodwaters, recharging groundwater supplies, removing pollution and providing fish and wildlife habitat.



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BLT Mission:

The mission of the Bethel Land Trust is to conserve land in its natural state and to steward the land so that it is available for walking, contemplation, and enjoyment for people, and as unspoiled habitat for plants and animals.

The Land Steward is published by the land trust for its members, supporters and collaborating supporters.

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From the President

by Don Warfield

Don't it always seem to go that you don't know what you've got 'til it's gone? -- Joni Mitchell

I don't think anyone can argue with Joni's message, since we often take what we have for granted. Our land trust mission is to preserve what we have so that future generations can enjoy what we do. Once open space is gone, it is gone forever, and will be missed.

Huntington Park, Putnam Park, Overlook Park and Meckauer Park -- welcome as they are -- can create a false sense of security for Bethel residents, since these state and town-owned open spaces, as well as the Bethel Land Trust preserves, are protected oases. They enable residents in many different neighborhoods to walk out of their homes and go for a walk in the woods.

Many other of our town's open spaces are not protected from development. There are often conflicting demands on unprotected town lands, and private tracts can be sold at any moment to developers willing to pay the asking price.

Fortunately, the Bethel Land Trust has been blessed with homeowners that have deep connections to their land, and through their gifts of undeveloped properties to the Land Trust, have contributed priceless pieces of nature for the enjoyment of all who live in or visit Bethel. Not to be overlooked are the many people who have supported the BLT through the years with their time, energy and financial resources. Support from all of these constituencies is critical.

Protected lands support our community; they provide cleaner air and water, flood control, storm protection and recreation. These benefits are silent, but they are real. Land use, when determined wisely, can meet both our conservation and development needs. When a developer, such as Jeffrey Bruno, sets aside land from his project to donate a wetland gem to the Bethel Land Trust, we can readily see that conservation does not preclude development.

I invite you to visit our preserves and I promise that you will be astounded by the natural beauty right in our town. Unlike city sidewalks, you'll experience the seasonal rhythms. Take a peak at Mike's Pond, just off Chestnut Ridge Road (you don't even have to leave your car!), and you will see 20 or more mallards in the month of November, happily swimming around and dining on algae.

We will continue to seek out more special swatches, stitching them together into a patchwork, not unlike a New England heirloom quilt, that can be lovingly handed down from generation to generation in years to come.

What is ahead for 2015?

As the Bethel Land Trust enters its 38th year, preserve stewardship is our top priority. Our emphasis will be on combatting a serious challenge, controlling the various invasive plants, mainly Oriental Bittersweet, Japanese Barberry and Multi-flora rose that inhabit several of our preserves. Thanks to our volunteers and our key partnership with Bethel Power Equipment, we are well positioned to take on our invasive control program.

We will also be installing our Bethel Land Trust signs on all our preserves to indicate our ownership while making it easier for visitors to find.

And lastly, we will be rolling out our newly designed website thanks to the efforts and contributions of Nora O'Neill of Rainy Day Paperbacks.



The last stragglers in our 4th annual
Walk a Hound - Hound Lose a Pound Dog Walk

Preserve stewardship

This year, we completed both an ecological inventory of and a management plan for each of our preserves.

The Land Trust undertakes a major responsibility when it accepts donated land and conservation easements. Preserve management activities vary; some preserves simply require an annual visit while others require trail maintenance or significant invasive species removal over a series of years. The plans will dictate how the preserve will be managed and used to protect its conservation value.

**Bethel voters approve
Open space land purchase.**

A land purchase was approved by voters at a 12-18-2014 Special Town Meeting to preserve 12.89 acres of open space that was destined for high-density development. It really speaks highly that our townspeople are committed to preserving open space, to protecting Bethel's semi-rural character. If this purchase had not been approved, 70 units of housing were planned. That would mean logging the ridge, extensive blasting, leveling the land and then building a 50 ft. tall retaining wall!

The town's purchase coincides with the Bethel Land Trust mission; lands with significant natural features, such as critical wildlife or plant habitat, wetlands, rock outcroppings, stream buffers, and other features are fragile and should be protected.

Maintaining Enchanted Trail Boardwalk



A CLOSER LOOK

The Beaver ~ Roberta Warfield

Many creatures live in wetland habitats, but only one can create them – the amazing beaver. American Indians called beavers the “sacred center” of the land, because they transform a woodland environment into a rich, watery habitat for themselves, as well as other mammals, fish, ducks, birds and frogs.

Beaver dams also help people. They keep water on the land longer, thus lessening erosion and alleviating droughts and floods, by soaking up floodwaters. Several feet of silt collect upstream of older beaver dams, enabling toxins to be broken down by microbes in the water. The water downstream of beaver dams is cleaner and requires less treatment for human use.

Of course, what intrigues us the most about beavers is their ability, only second to man, to mold the landscape to suit their needs, using their strong teeth to create engineering marvels – dams of logs, branches and mud that block streams to create ponds. They then build domelike lodges of the same material, frequently in the middle of the pond, and only reachable by underwater entrances.

Some fun beaver facts:

- Beavers can live up to 24 years, mate for life and live in families of newborn kits and yearlings born the previous spring.
- Beavers can swim within 24 hours of birth, and are outside the lodge exploring with mom and dad within a few days.
- Beavers are North America's largest rodents (~ 60 lbs.) and are herbivores, eating leaves, bark, roots and aquatic plants.



What is a wetland? "Wetland" is a generic term for all kinds of wet habitats – implying that it is land that is wet for some period of time, but not necessarily permanently wet. An example of a temporary wetland is a vernal pool, created by precipitation. Wetlands are a link between the land and water. In the past, wetlands were regarded as worthless, mosquito-infested swampy lands that bred diseases, restricted overland travel, impeded the production of food and fiber. Today, wetlands are looked on as one of the most important productive life ecosystems on earth.

The sources of water in wetlands are predominantly precipitation (rain, snow, mist), surface and groundwater storages. The vegetation, bodies of water and soil conditions of the area, distinguishes wetlands. Water flows out of wetlands due mainly to evaporation, surface runoff and evapotranspiration (the evaporation of water supplies due to plant consumption). Some common names for different types of wetlands are swamp, marsh and bog.

Bethel's inland wetlands are along streams, in isolated depressions, along the edges of ponds, or in other low-lying areas where the groundwater meets the soil's surface or when runoff is significant enough to allow formation.

The ecological importance of wetlands:

Fish and Wildlife Habitat/Biological Productivity: Often called "nurseries of life," many species of birds, fish, mammals, reptiles, amphibians and especially insects rely on wetland habitat for breeding, foraging, and cover, providing a unique habitat for species that cannot survive elsewhere. Migratory birds depend on wetlands, and many endangered and threatened animal species require wetlands during part of their life cycle. The incredibly high rate of wetlands' loss has contributed to their demise.

Wetland plants and small animals -- especially insects -- are essential links at the lowest levels of the food chain. A wetlands environment supports these plants and animals, which in turn support the larger animals that feed on them. While an otter or a trout may be a more attractive species to protect than some anonymous insect or plant, the latter are no less important in the overall scheme. If we diminish the lowest levels of the food chain, the higher levels will suffer as well.



Human importance:

Flood control: Wetlands can play a role in reducing the frequency and intensity of floods by acting as natural buffers, soaking up and storing a significant amount of floodwater and then releasing it slowly. The size, shape, location, and soil type of a wetland determine its capacity to reduce local and downstream flooding. While wetlands cannot prevent flooding, they do lower flood peaks by temporarily holding water and by slowing the water's velocity. Wetland soil acts as a sponge, holding much more water than other soil types. These wetland reservoirs can typically hold more water than it appears, approximately 1-1.5 million gallons of floodwater per acre.

Cleaning the water that you drink: Wetlands filter the water that flows through the wetland. Before our drinking water reaches your faucet, wetlands are able to filter out sediment, nutrients and toxic chemicals. Thus they filter, clean and store water. These functions are especially important when a wetland is connected to groundwater or surface water sources (such as rivers and lakes) that are in turn used by humans for drinking, swimming, fishing, or other activities. These same functions are also critical for the fish and other wildlife that inhabit these waters.

Groundwater recharge: Aquifers and groundwater are "recharged," that is, replenished with water by precipitation that seeps into the ground and by surface waters. Those wetlands connected to groundwater systems or aquifers are important areas for groundwater exchange. They retain water and so provide time for infiltration to occur. Groundwater, in turn, provides water for drinking and irrigation. Wetlands' many intricate connections with groundwater make them essential in the proper functioning of the hydrologic cycle.

Recreation: Plants and animals are not the only ones who benefit from wetlands. Lakes and ponds, which are included in a wetland ecosystem, serve as excellent areas for fishing, canoeing, and swimming, while smaller wetlands are prime bird watching spots and provide beautiful scenery for nature walks.

The Limits of Wetlands

As amazing as wetlands are, and for all their ecological and human contributions, they do have their limits. A partially filled or otherwise damaged wetland is one that only partially meets its potential for flood control, shoreline stabilization, or groundwater recharge. A badly degraded wetland can lose its capacity to remove excess sediments, nutrients, and other pollutants, and can lose its habitat value for fish and wildlife. Wetlands may have tremendous capacities to provide environmental and human benefits, but they are not indestructible. If we want wetlands to continue to perform their ecological and human functions, then we have to do our part to protect them.

Human Activities That Affect Wetland Plant Communities

Land Clearing: Land clearing commonly occurs within the buffer area and sometimes directly in wetlands. These activities adversely affect the soil structure, the type of plants that grow in the area, and the density and overall health of the vegetation. These changes in turn affect wetlands' filtering capacity, flood control capabilities, water recharge, and wildlife habitat.

Non-Native Species Invasion: Introduction of non-native (exotic) plants has damaged or ruined ecosystems around the world. Exotic plants choke out native vegetation and alter the way wetlands function. This can affect sedimentation, nutrient use, habitat value, and more. These changes affect the benefits the wetlands provide.

Using Chemicals: Fertilizers and pesticides (plant and insect killers) represent a potential threat to wetlands. If they are used on adjacent or upstream lawns it is likely they will eventually enter local waterways and our wetlands. These chemicals alter the ecological balance of wetlands and can indirectly create many problems. For example, certain pesticides will eliminate important bugs and insects that work in the wetland. You might not notice the loss of these "pests," but perhaps an algae bloom will take over the pond because the insects and microscopic life that may normally have controlled the algae bloom are no longer there. There may also be a decrease in the bird population because their food source (the bugs and insects) is gone. Likewise, additional nutrients from fertilizers will cause extensive plant growth. These plants will eventually decay, cause oxygen depletion, and again result in a stagnant wetland. Our Mike's Pond is an example of chemicals gone wrong.



- This product is highly toxic to honeybees.”
- “This product is extremely toxic to fish and aquatic invertebrates.”
- “Do not apply where runoff is likely to occur.”

Dumping and Filling: Since wetlands have traditionally been viewed as wasted land they are often used as garbage dumps; old refrigerators and stoves, tires, bikes, and every other imaginable refuse can be found in wetlands.

Another common dumping practice is to throw fill dirt, lawn clippings, wood chips, and other yard waste into wetlands. Any kind of filling results in direct loss of the wetland's capacity to control flooding. The best thing to do with yard waste is to compost it. (Compost piles should be located far enough from your wetland or other surface water to ensure the nutrient-laden runoff water that drains the compost will not reach them.)

Storm water: A common source of pollutants to storm water is the area around the garage and driveway, where petroleum products and other chemicals are used for household and car maintenance projects. If you let these products drain onto the drive, they will eventually wash into local waterways and perhaps, end up in your drinking water supply.

Septic Systems: Septic systems also are a source of pollutants to wetlands. Seepage from your system may be polluting nearby areas, including our wetlands. To avoid this problem, have your septic system pumped and inspected every three to five years.

Recreation Overuse: Off road vehicles (ORVs) -- dirt bikes, all-terrain vehicles, and mountain bikes -- destroy soils, vegetation, and wildlife habitat within your wetland and its protective buffer strip.

For the environmental services that wetlands provide, it is essential to protect and conserve wetlands. Bethel faces a number of challenges to protecting wetlands. Development pressure, confusing Supreme Court cases and legal battles, climate change impacts and invasive species, plus the public's general lack of understanding about the value of wetlands hinder the ability to protect wetlands.

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