**OPAL Community Land Trust**
**Bonnie Brae**
**Guide to Wetlands**
March 2010

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**Overview of the Bonnie Brae Wetlands:** The Bonnie Brae Wetlands need our protection. This brief overview provides basic answers to a few questions: Where are the wetlands? What are their functions? How could their health be threatened? And what actions could help protect and sustain them?

**Where are the Bonnie Brae Wetlands?** Prior to developing the property that is now called Bonnie Brae, in 1999 OPAL Community Land Trust engaged the services of professional wetlands biologists and civil engineers to understand the wetlands system and design a neighborhood that would protect that system, in accordance with state regulations. More detailed reports and maps are available in the OPAL office.

The Bonnie Brae Wetlands are located approximately .6 miles from the intersection of the Orcas to Olga County Road and the Lovers Lane at Eastsound. The site abuts the easterly portion of Lovers Lane the southerly portion of Mount Baker Road. The Wetland mitigation site is located approximately 1000 feet south westerly of the Wetland site on the San Juan County Public Works Department Property to the north.

**What are the functions of the Bonnie Brae Wetlands?** Wetlands provide many functions and are unique and vital ecological resources. One reason wetlands are so important is the unique wildlife and vegetation they support. They are among the most productive natural ecosystems on the earth. Many of the wetland plants provide food, shelter, and nesting areas for the animals that also make wetlands their home. Wetlands are major breeding grounds for various resident and migratory birds. They are migratory stopovers for many species of waterfowl, wading birds, shorebirds, and songbirds. Many species of invertebrates, amphibians, reptiles, and mammals depend on wetlands for survival.

Wetlands are also important in the way they interact with the environment around them. They are natural reservoirs and erosion controllers, and they function as natural sewage systems. When rain sinks into the ground, it is stored in naturally occurring underground depressions. This prevents the water from immediately flowing into streams, rivers, lakes, or the gulf or ocean. The specially adapted plants that live in the wetlands act as flood controllers and as water purifiers. The vegetation slows the water enough so that sediment and chemicals in the water can settle to the bottom. As the water is cleaned the plants absorb the chemicals that are released. The plants then convert the chemicals to usable substances and eventually pass on these nutrients to the animals in the ecosystem. The ability of wetlands to recycle nutrients and to take suspended materials and chemicals out of the water is a critical and unique function.

Wetlands also help to control flooding. When water levels are high due to storms and flooding, the heavy, spongy vegetation absorbs the water and slows its flow. The combined action of storing and slowing can lower water level heights and reduce the water's erosive power. Additionally, the slowed water drops soil that builds up, forming higher, more insulated ground where terrestrial grasses and hardwoods can take root, reducing the force

of erosion even more. Maintaining wetlands near developed areas may be the least expensive insurance policy homeowners can purchase to protect their property.

Buffers, the natural, undeveloped area surrounding a wetland, are a crucial part of the wetland system and must be protected along with the wetlands themselves. The size of the buffer is established through regulations, based on the quality level of the wetland. Buffers provide the initial filtering of sediments and other pollutants from runoff water. Buffers also slow and direct runoff water and are, therefore, important to wetland hydrology. In addition, they serve as a "habitat connector," providing a protective pathway for wildlife species moving from the wetland to other upland habitat areas. They are vital to the livelihood of many species that rely on upland areas near wetlands to complete their habitat needs. And buffers provide a visual and noise barrier between the inner core of the wetlands and adjacent activities.

**The mitigation goals and objectives of the Bonnie Brae Wetland are the following:**

- Provide 10,500 square feet of wetland to replace 7,000 square feet of wetland filled for road construction.
- The constructed wetland provides similar functions as the portion of the wetland filled. This involved an increase in the diversity of wetland plant species by increasing the size of the wetland on the most westerly upslope portion of the site.
- The constructed wetland also provides for sediment removal and increases the capability of the wetland to affect flood flow alteration.
- Due the location of the wetland, there is excellent habitat for Invertebrate Amphibians, Birds, and to lesser degree mammals. Further, as it is adjacent to and connected with 2nd Growth Douglas Fir dominated forest, this will also create a forested community.

**Maintenance and Activities *incompatible* with Bonnie Brae Wetlands:**

- **Maintenance of the Bonnie Brae Wetlands:** The Bonnie Brae home owners' responsibilities are focused on protection and prevention of disturbances to the wetland and buffer areas. This is largely a "passive" maintenance in so far as the wetlands and buffers, if left substantially alone, are likely to maintain their ecosystem. Very little will be required of Bonnie Brae home owners, unless there are invasive plant species that invade the wetlands or actions occur that require remediation (see list of incompatible activities, below).

- ***Fertilizers and pesticides*** (plant and insect killers) represent a potential threat to your wetland. If they are used on adjacent or upstream lawns or landscaping it is likely they will eventually enter local waterways and your wetland. These chemicals alter the ecological balance of wetlands and can indirectly create many problems for you. 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. There are safe alternatives to using fertilizers and pesticides.

- ***Fill dirt, lawn clippings, wood chips, and other yard waste*** dumped in a wetland will cause changes in a wetland's chemical balance. Although yard waste is composed of natural materials that will eventually decompose, they can damage a wetland in the process. As they decompose they release nutrients and use up oxygen that is necessary for aquatic life. The result is likely to be a stagnant, smelly wetland. 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.)

- ***Dogs and cats*** represent a problem for wetland stewards. They can destroy the wildlife populations you may be trying to protect. The best option for wildlife protection is to exclude dogs and cats from the wetland entirely. Restricting dogs from the wetland during early spring and summer and requiring leashes throughout the year is a less limiting measure. This allows access to the wetland yet eliminates wildlife harassment. Cats can be highly efficient predators and in some areas the sheer number of domestic and feral cats (domesticated cats that have gone wild) is a detriment to wildlife populations. Placing bells on the collars of cats can provide warning to birds. (Note: Some cats apparently have learned to stalk prey without ringing a collar bell, so the more bells the better.) It may be prudent to keep cats indoors during early morning and dusk when wildlife is most active. You can protect individual nesting trees from preying cats by nailing a wide piece of sheet metal around their trunks.

**Conclusion:** The Bonnie Brae Wetlands are a unique feature of the Bonnie Brae community. Their ongoing care and maintenance are meaningful on a number of levels. The simple removal of litter for aesthetic purposes or habitat improvement is fun and rewarding. Determine how you will access the Bonnie Brae Wetlands and cause the least impact to wetland plants and soils. Involve the entire Bonnie Brae community as the sustainability of this wetland impacts all of its members. Overall, living in compatible ways with our Bonnie Brae Wetlands will support our long-term investment of our community.