

The Galiano Stewardship News

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a newsletter of the Galiano Conservancy Association sharing ideas, stories and perspectives on stewarding our land

Galiano's Great Squirrel Debate

by Kadek Okuda

If I were to say "Galiano squirrels" what would come to mind?

Perhaps some cute little woodland creature, or maybe a tree rat with a fluffy tail? Before I got my summer job with the Galiano Conservancy, I would not have thought much if someone said Galiano squirrel, but now all I think of is the Great Galiano Squirrel Debate. This raging controversy centers on what type of squirrels we have here on Galiano: either the Douglas squirrel (*Tamiasciurus douglas*), or its close cousin, the Red squirrel (*Tamiasciurus hudsonicus*). I hope to shed some light on this debate and, perhaps, set the record straight.

First off, Douglas squirrels are not named after the Douglas-fir tree. Both the tree and the squirrel are in fact named after David Douglas, a Scottish botanist who collected the first Douglas squirrel specimens in the early 1800's. While they may be slightly redder than the Douglas squirrels, Red squirrels are not distinctively bright red.

The squirrel debate is fuelled by the similarities between the Douglas and the Red squirrels. Both species are about the same size (25 to 38 centimeters including the tail) and weight (150 to 300 grams). They are diurnal (active during the day) foragers for coniferous tree seeds, mushrooms, berries, nuts, fruits, tender tree shoots and from time to time birds' eggs.

The squirrels are territorial and make a "churring" noise to warn intruders not to trespass. Their territory of 0.8 to 3.8 acres is where the squirrel gathers and stores food for the winter. The squirrels can make different types of nests: tree nests built of twigs, grasses, mosses, lichen and shredded bark; nests in tree hollows left by woodpeckers; and underground nests during severe winter conditions.

Squirrels are not found on all Gulf Islands. At least in recent times, Galiano has had squirrels for



DOUGLAS SQUIRREL
BY SHAUNA ANDERSON

only a few decades. It is logical to assume that they floated across either from the mainland or from Vancouver Island. This is where things start to get complicated.

Red squirrels are more widely distributed, found on Vancouver Island, in the interior of BC and across Canada. Douglas squirrels, only live along the coast of the lower mainland of BC and into the USA. Galiano is inconveniently located where the Douglas squirrel and Red squirrel territories overlap. So, the different ranges don't really help in figuring out which species of squirrel we see on Galiano. Both species of squirrel have been confirmed as residents of Cortez Island. Could the same be true here?

There are subtle visual differences between the Douglas and the Red squirrel, as their coats change colours from season to season. The Douglas squirrel is greyish to olive brown with an orange or yellowish buff belly in the summer. In winter they become slightly browner as their bellies turn slightly greyer. The Red squirrel also has an olive brown coat in the summer, but sports a white belly. In the winter their coats become slightly redder, but their bellies remain white. Unlike the red squirrel, the Douglas squirrel grows small ear tufts in the winter and has yellow-tipped hairs in its tail.

With this information now out, what conclusions can we draw? Do we have Douglas or Red squirrels, or both? While working with the Conservancy, I have had the opportunity to observe our squirrels in the forest. The squirrels I have seen had white bellies. I also saw a red tinge to their fur in bright sunlight. This draws me to conclude that we have Red squirrels on Galiano, but I do not claim to be any kind of a squirrel expert. I have only seen a few squirrels, and there could be another species out there.

Will you take the Great Squirrel Debate challenge? For now, you must draw your own conclusions about our squirrels. We'll need a courageous squirrel authority to come up with a definitive answer.

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About Covenants for Greenfrog Farm

by Rose Longini

On a summer day in 1989, I stood at the shore of the big pond for the first time. Two eagles, sitting on the branch of a cedar snag, were my witnesses. I sensed the mystery and abundance of this 80-acre landscape. I was about to become the new owner of this land, although it was clear that all this animal and plant life could never be “owned” in the same way that one owns a house on a city property.

My son was uneasy about my new plan, but when he came out to take a look, a chance meeting with a little green treefrog assured him it was going to be okay.

Nor could I “own” the history of the place. I would be the seventh titleholder. Charles Groth (German) and Elizabeth Georgeson (First Nations) had homesteaded in the last quarter of the 19th century. They were succeeded by Albert Head (First Nations), Cyril Morgan (Welsh), Frederick Hardie (English), Gertrude Jackson (German) and the Harold Dyer family (English). And before them, perhaps 6000 years into the past, First Nations people would have made their way here from their Montague Harbour village or camp in search of foods, medicines, fresh water and wildlife.



And yet, after living for a few years with the beauty and peace of the place, I felt strongly that my ownership could decide the future here. The clean air, soil, water, and the serenity of the place would be lost forever if the land were to be developed to the full capacity allowed by the zoning. The mixed rural Residential and Agricultural zones allowed at least six subdivisions.

I wanted to protect ponds and wetlands where eagles come to wash saltwater from their wings after fishing in the sea, healthy mixed-species second growth woods, three 600-year old Douglas fir trees and a 400-year old broadleaf maple, an apple orchard planted in 1886, a walnut grove planted in 1993, vegetable gardens and hazelnut trees. Besides, all of this had been “certified Organic” since 1992.

The covenant inventory identifies 74 bird species residing and present at times during the year, another 36 bird species possibly present, 5 mammal species, 3 amphibian species, and 47 wild native plant species, noting “This list of plants identified during the baseline survey is by no means complete.” But this kind of list can never be complete, and I like the way Annie Dillard says it: “What I aim to do is not so much to learn the names of the shreds of creation that flourish



in this valley, but to keep myself open to their meanings, which is to try to impress myself at all times with the fullest possible force of their very reality.”

So I began the process of investigating, planning, preparing the maps and inventories, and going over and over the details and the language of the covenant documents. This took a couple of years and it taught me a lot about the place and the possibilities.

The overall intention of my decisions is to allow sustainable living on the land while maintaining the integrity of the natural features. No subdivision of the RR zone or the AG zone is permitted, build-out capacity in the RR zone is reduced from 5 houses and 5 cottages to one house only, riparian areas are protected, use of herbicides and pesticides is prohibited, harvesting of trees must comply with sustainability standards set by the Silva Forest Foundation in a document attached to the covenant, and the four ancient trees are protected.

Representatives of the covenant holders – The Islands Trust Fund and the Galiano Conservancy Association – visit the property once a year to compare the current state of the land with the original baseline photos. I look forward to these friendly visits, when there is always useful information to be exchanged. It is an expansive feeling to know that we’re all working toward a common goal of protecting this place for my family, for all visitors into the future, and for the long-term good of the whole ecosystem and community.



Somehow I was given, for a time, this uniquely precious spot on the planet where I can practice talking to ravens in their language, drink medicinal teas made of native plants and weeds, and be nourished by the deep peace of dawn and dusk each day. I can trust the goodness of the food grown in my garden, washing the carrots in the clear stream that runs through here from the protected heights of Mount Sutil and Mount Galiano, and then all the way down to Murchison Cove at Whaler Bay. I can savour the old varieties of apples that come each year, unlike any to be found in today’s markets, feeling that they connect me to the people who planted them. And I can trust the community of island friends. These covenants make it more likely that my grandchildren and the grandchildren of people unknown to me will know the wealth and joys of this land.



Precious Water: conserving as a way of life

by Nathan Gaylor

Water is an essential component of life on earth. All living organisms are made up of at least 75% water (Hammond 1990). Even we humans are about three-quarters water, and without it we deteriorate rapidly. We can live for a month without food but will die within a week without water (De Villiers 2000). Water helps keep our muscles and skin flexible, regulates weight loss, transports oxygen and nutrients to cells, eliminates toxins and wastes from the body, and adjusts body temperature.

The amount of water on earth is fixed. No more water is being made. There is the same volume of water on the planet now as there was in prehistoric times. Water can be polluted, misused and abused, but is neither created nor destroyed; it only migrates to various locations through complicated cycles.

There is an estimated 1.4 billion cubic kilometers of water on earth in oceans, lakes, streams, glaciers, and groundwater (De Villiers 2000). This is a crude guess as nobody knows how much water is stored in underground ice in permafrost regions, or in bogs and marshes. More than 97% of the earth's water is ocean saltwater. Freshwater accounts for only about 2.5% of the planet's water. Only two-thirds of this precious freshwater is available to humans, because the rest is locked up in the polar icecaps (De Villiers 2000).

Humans get most of their water supply from freshwater lakes, groundwater, and rivers. However, these systems contain just 90,000,000 cubic kilometers, or only 0.26% of the world's total supply of fresh water. In national terms Brazil has one-fifth of the world's available water, largely in the Amazon basin. Canada ranks fourth in surface freshwater supply with 5.6 percent, just 0.1% less than China which has to support thirty times our population (De Villiers 2000). More than half of our planet's lake-held freshwater lies in North America's Great Lakes (27%) and Russia's Lake Baikal (25%).

Clean water for human consumption relies on the earth's forests. The forest canopy intercepts rain and protects soil from erosion. Forests and their associated wetlands slow the

movement of water, removing contaminants and impurities in the process. A forest acts as a sponge and filter that slowly releases pure water through the soil (Hammond 1990). The oldest forests provide us with the cleanest water. Old forests are better able to clean water because the intricate processes that perform this service are undisturbed. Protecting old forests will help insure a healthy, clean source of water for future generations.

Galiano Island is located in the rain shadow of Vancouver Island's mountains. As a result the Coastal Douglas-fir Biogeoclimatic zone is dominated by tree species such as Douglas-fir and Arbutus that would not flourish in the moist conditions on the west coast of Vancouver Island. Our relatively dry island also experiences seasonal periods of drought. With no major catchment areas such as lakes and rivers, Galiano's human population depends on groundwater for most of its water needs.

Groundwater is recharged only by rainfall on our own island. Precipitation most likely to end up as groundwater falls on upland areas. There, water that does not run off quickly into the sea or evaporate can percolate through the soil into fractures in the bedrock (Harrison 1994). These fractures are our groundwater storage, a temporary catchment before discharging finally to the sea.

“Water for human use comes from forests. Creeks, springs, lakes and wells all depend on healthy forests to sustain them.”

- Hammond 1990.

Galiano groundwater levels fluctuate with seasonal rainfall: high levels during wet winter months and low during dry summer months (Harrison 1994). All the gulf islands, including Galiano Island, have populations that swell in the summer (some estimate Galiano more than doubles). As a consequence, we withdraw the greatest amount from available groundwater storage, just when the recharge from rainfall is at its lowest (Mordaunt and Hodge 1983). Many islanders find themselves having to conserve water during the dry summer months to ensure a steady supply.

Conserving water on Galiano Island is multi-faceted. First, it is critical to protect the process by which rainwater becomes our

groundwater supply. To do this we must ensure that the integrity of the forest and wetland systems is intact. These natural filters provide a source of clean water, but cannot cope with toxins or chemical pollutants that might carelessly seep into the system. If wetland and forest systems are damaged then restoration activities may be required to help these ecosystems begin to heal. By the time evidence of groundwater deterioration shows up, it is long past the time for forest restoration to commence.

Once the source of the water is secure, the task is to reduce demand: how much water we need to withdraw from groundwater supplies. Collecting rainwater in a cistern or barrel for irrigation will greatly reduce overall groundwater use. Installing efficient irrigation systems that deliver needed water to individual plants reduces evaporation and runoff. Landscape and gardens with drought-resistant plants will not require an excess of water during dry summer months.

Gardening not destined for your dinner plate might happily thrive on “gray” water instead of fresh drinking water from the tap. Consider other safe ways of recycling used water. Systems can be planned at the time of construction to install a dual-line water system for potable and non-potable water.

Seek out appliances that are water-efficient. With mandatory water conservation in many jurisdictions around the world, it is easy to upgrade your toilet to a low flush model or install an efficient showerhead.

These are a few of the steps everyone can take to help conserve our water supply on Galiano Island. To learn more about the island’s groundwater, and choices you have in practicing better groundwater stewardship, visit the Galiano Conservancy Association library and resource centre.

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Stewardship in Your Backyard

by Nathan Gaylor and Carolyn Canfield

Conservation action has traditionally preserved lands to shield them from human degradation. That's what our parks do, and that's what many heroic community efforts have accomplished on Galiano. The problem is that preservation areas are often not able to encompass the entire habitat of a species. What's more, wildlife don't recognize boundaries we draw on maps.

While protecting isolated reserves is still an important piece of the conservation puzzle, this is not a solution for most ecosystems at risk. A more comprehensive conservation approach needs to focus as well on the "matrix" — the unprotected areas around reserves. On these sites a careful approach to human use and activity is essential. An attempt is made to work in balance with our natural environment. Here, landscape level connections can ensure the safe movement and complete distribution of wildlife species and habitats.

The Galiano Conservancy Association is working to improve protection for our island's natural connectivity in its ongoing project to establish the Mid-Island Protected Areas Network to span the island from the Strait of Georgia to Trincomali Channel. Also, the Galiano Club's Heritage Forest now links the Georgia Strait shoreline near Sticks Allison to the upland of Montague Park to enhance island-scale connectivity.

Connections can also exist on a local level. Restoration can focus on healing the connections between isolated patches of healthy habitats. The Conservancy is developing new techniques to restore an industrial clearcut site to a highly diverse, healthy forest. Micro-habitats and connections form where woodpiles are dismantled and redistributed around the forest floor. Where no old trees exist, artificial snags can give songbirds, owls and woodpeckers a place to feed, roost and nest. A network for bacteria, micro-organisms, insects and fungi leads the way for those higher up the food chain to travel from species-rich riparian areas to restoration sites.

Most of the island's ecosystem lies outside of protected areas. Conservancy staff is working with landowners to form Stewardship Agreements that state the intent of the landowner to take an ecologically sensitive approach to managing their property. These agreements are not legally binding. The network grows as landowners become aware of how their properties fit into the landscape and realize the impacts of their property management on the overall area.



For example, a landowner might choose to protect a wetland on property adjacent to a protected mature forest in the neighbourhood. Wetlands provide important habitat for a wide variety of life, including the Roughskin Newt. The Roughskin Newt might live most of its life in protected forested land, in or under soft rotting logs. Adults then migrate to the landowner's wetland for breeding, laying their eggs from mid-spring to summer. Most will then migrate back into the forested area for the remainder of the year. By protecting the wetland, the landowner is also enhancing the natural values of the mature forest next door and supporting landscape level connections.

For the past few years, the Galiano Conservancy has been contacting neighbours to its Mid-Island Protected Areas Network to explore opportunities for conservation cooperation. Some twenty property owners have signed onto a voluntary Stewardship Agreement with another dozen in process. These responsible islanders can proudly consider themselves "Ecologically Conscious Neighbours".

Now the Galiano Conservancy is extending its Stewardship Agreement program to the entire island, recognizing that conservation everywhere helps out the island's ecosystem. Our staff will work with the landowner to examine specific features of the property and assess their importance to natural systems. We will prepare a map of your property to help you with your stewardship decisions.

If individual landowners wish to learn more or have questions, we will be happy to offer our expertise, to identify references in our library, or to connect you with an outside resource. If you would be interested in learning more about this program, talking with current participants, or enrolling, please contact the Galiano Conservancy Association at (250) 539-2424. We invite you to help repair habitat fragmentation at home to support a fully-functioning ecosystem on Galiano Island.

Ecologically Conscious Neighbours - Stewardship Agreement -

I/We, _____

At, _____

agree to be an **Environmental Steward** of my/our property
on Galiano Island.

I am conscious of the need to:

- Control invasive exotic species such as Scotch broom, Himalayan blackberry, Evergreen blackberry, English holly, and English ivy.**
- Protect the integrity of older forest stands or trees, Garry oak meadows, bluffs, wetlands and streams.**
- Nurture the vitality of streams, ponds and wetlands of all kinds with protective natural vegetation buffers (15 meters is often suggested but it can vary, more is always better). If a buffer does not exist, consider restoring one using native vegetation.**
- Protect large dead trees which provide valuable habitat for a variety of wildlife.**
- Allow the natural cycle of decomposition to occur in fallen trees and branches by leaving them to become part of the soil.**
- Leave parts of my land unfenced allowing the movement of wildlife through my property.**
- Share my ecological goals with my neighbours and work together to plan protection and restoration so that our efforts may contribute to larger "reserve" areas.**
- Help heal "unused" disturbed areas of my land through ecological restoration.**
- Conserve water: Store water for garden use in roof-fed cisterns; plant drought-resistant vegetation whenever possible. Use mulches in my garden.**
- Choose alternatives to chemical pesticides and fertilizers.**
- Get to know my non-human neighbours: local plant, animal and wildlife species.**

We, the Galiano Conservancy Association, agree to assist the undersigned by providing expertise on native species, their habitat, habitat restoration and conservation. We will provide the undersigned with a map of their property to aid with stewardship activities. Where adequate information is not available through the Galiano Conservancy, we will provide a liaison function to obtain the information needed from the relevant government agency, academic institution, professional group or knowledgeable individual.



Environmental Steward(s)

Contact Name, Galiano Conservancy Association

Date: _____

The Water Closet: time for a better idea?

by *Shauna Anderson*

When I came across the statistic that Canadians flush forty percent of their available potable water supply down the toilet I was shocked.

Canada is a country with ample water supply, that is true, but this may not remain in the years to come, considering the progress of global climate change. Today's abundant natural resource, plus the luxury of electric pumps and filtering systems, gives lucky Canadians a constant supply of clean H₂O.

We use water for so many things: cooking, cleaning, bathing, drinking, watering gardens, washing cars, and of course, flushing our toilets. And we do all this without a thought to the longevity of the source of water.

In the Gulf Islands especially, the groundwater supply is somewhat limited. Traditionally, well levels drop significantly in summer and rise again in winter. Many island homes experience water shortages or surpluses that can create big problems. So much relies on having clean water available. Fluctuating water availability along with the septic systems as are common in the Gulf Islands creates even bigger issues.

With a septic system, water is temporarily trapped inside a tank to stop it from re-entering the hydrologic cycle immediately. There it remains until it flows to the septic field or is pumped out of the tank and hauled off-island for disposal (just where?). As we all know, it is not just human waste and water that goes into the septic tank, but also paper, soaps and sulfates, and untold other chemicals...this is a concern to many in both cities and rural communities.

When I was introduced to the concept of a composting toilet, I was interested in the positive impact it could provide to a region like the Gulf Islands. The idea of a composting toilet is simple, much like a properly operating outhouse, except it is built into the home separate from the water system.

The toilet takes food compost as well as human refuse, and biodegradable toilet papers too. Add a little dirt and a healthy population of earthworms and the composting toilet creates a supply of rich soil. There are different designs for the indoor composting toilet, but most require a good amount of air circulation. This is important to the composting process and to lessen any odor: composting toilets are said to operate without unpleasant stench in a domestic home setting. They also have an opening so the compost can be removed when needed, or mixed. This is merely a more advanced version of the kitchen and yard waste composting system that most people use to promote good soil in their gardens.

Composting toilets give you a better way to deal with human waste, allowing it to turn back into useable soil instead of managing waste as an unusable product. Composting toilets also greatly reduce the unnecessary use of water

in the home, a benefit to conserving the resource and helping the surrounding area.

It seems that the flawed systems of dealing with human waste are hard to break from. For some people, to go without a water-flushing toilet it would be an "issue", because they either carry misconceptions about the hygiene of outhouses or composting toilets. Another impediment is the challenge of incorporating a new system into an already-built home.

With different environmental concerns growing in the future, it is hard to ignore the advantages in using a composting toilet system. At the very least, the composting toilet should be considered an option instead of being written off as dirty, too much work, or unnecessary. This could be a more economical option in the long run, as well as a healthier one.

For more information, start with a look at the CRD webpage: www.crd.bc.ca/water/waterrecycling/greywater/information.htm

**The Galiano Conservancy Association
publishes Galiano Stewardship News
to share ideas, stories and viewpoints
on stewarding our land. We welcome
your writing, art and photography.
We also welcome your comment on
this issue and requests for more
information. Please contact us.**



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