

# Watershed *Sentinel*



June/July 2009  
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Environmental News from BC and the World

## **Sunscreen** **Health** **or Hazard?**

*Also Inside:*

- Uranium Legacy
- Choosing Ethical Coffee
- Community Farming
- Progress on Fish Farms
- Mining the Flathead



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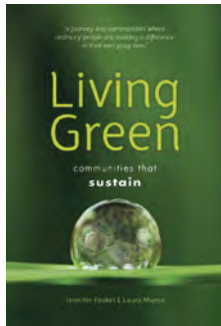
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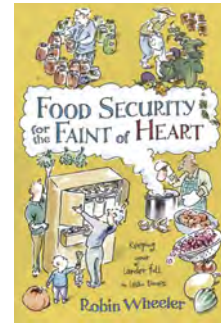
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# Watershed *Sentinel*



June-July 2009

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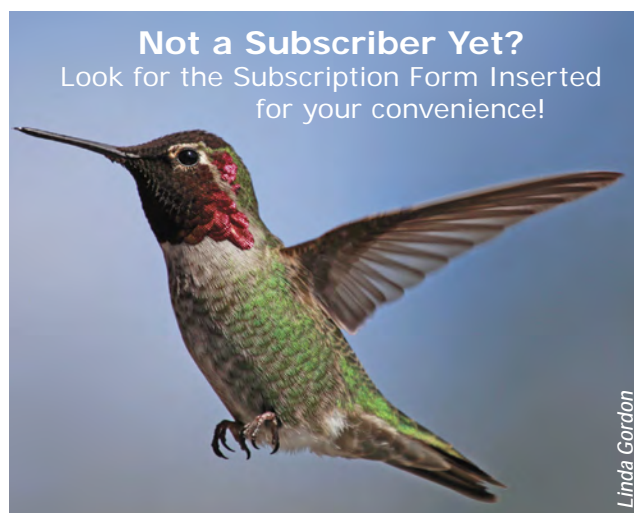
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Cover: by Ester Stribos



Linda Gordon

The first "All Art Show", July 10-12 in Sooke, BC will highlight literary aspects of art featuring graphic novelists, photographers, poets and authors, musicians, visual artists and painters. [www.allartshow.org](http://www.allartshow.org)



# Watershed *Sentinel*

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## EDITORIAL

### Closing Time

Whether it comes from disastrous climate change or from fossil fuel energy so expensive that it can no longer drive this profligate civilization, the end of the cheap energy party is indeed near, within a decade or at most two. For 900 million humans on our planet who are hungry now, for the species being snuffed out at lightning speed, the end is now.

Yet we continue to fiddle: with carbon taxes, with corrupt market mechanisms to control emissions, with bombast, delusion, ego, and more ego, and ponzi schemes. We will desperately try anything at all, from nuclear roulette to elaborate constructions to the latest high tech gimmick, to keep business as usual functioning for one more fling. We lie.

What we need is emergency measures from governments as in full wartime action. We need to re-design our supply systems – water, food, transportation, information – to function in a world without oil, a world with less coal, a world of hard physical work, a world like our grandparents knew. We need to start now.

For both climate and supply reasons, BC needs to leave its coal in the ground, and save its natural gas for urgent uses in the public interest. The sacrifice of the Commons to individual greed must end.

And still the party goes on, with extravagance and circuses, a medieval debauch, right up to closing time.

*Delores Broten, Comox BC, May 2009*

### Run of River

Why are we handing over irreversible control of our ancient, and life-giving, rivers to present day buccaneers? Premier Gordon Campbell would have us believe that we are entering the long dark tunnel at the edge of the light. What skulduggery is afoot here? It's likely that we don't really need another massive hydro-electric project. More than anything else we need to curb our wildly extravagant use of our present electricity supply.

Our cities are ablaze all night with neon billboards urging the population to fly away to exotic locations, or to dine at high end restaurants, and buy yet another car, or more gadgets too numerous to list, while we are being fed lies about electricity scarcity. We all need to give our head a shake. Maybe the collective universal brain will restart.

If we proceed with the Run of River insanity, with its proposed roads, dams, bridges and destruction of wilderness habitat, we are putting at risk the wild creatures that live there, and the ancient wild salmon migrations that are so critical to the livelihood of the first nations people, and in fact the whole commercial fishery.

Looking toward the future, some may worry about what's next for our rivers. Is it a stretch too far of the imagination, to foresee super tankers in Toba Inlet, engorging our rivers, to be hauled away to freshen the overworked and dried out soils of California, Arizona, and Mexico? We already know that the Colorado River no longer runs to the ocean, due to intensive watering of food crops, much of which are exported.

*Don Malcolm, Comox BC, May 2009*



# Have You Heard?

Compiled by Delores Broten and Susan MacVittie

## Feds Break Law on BC Endangered Species

The federal government conceded it has been breaking the law by removing critical habitat maps for endangered species. The admission surfaced in a legal argument filed by the Department of Fisheries and Oceans (DFO) in a lawsuit over the endangered Fraser Valley Nooksack dace.

The environmentalists' lawsuit alleges that DFO violated the Species at Risk Act by removing critical habitat maps from the Nooksack dace recovery strategy. While DFO has now re-inserted the maps for the Nooksack dace, it still refuses to concede that it must always identify the location of critical habitat for all endangered and threatened aquatic species.

In BC, eight species are waiting recovery strategies: the humpback whale, four populations of white sturgeon, Salish sucker, north Pacific right whale, and shorthead sculpin.

—*Ecojustice, May 2009*

## Valhalla Mile Added to Provincial Park

The BC government, with the help of a number of partners, has acquired the Valhalla Mile property, consisting of 63 hectares of land and 1.7 kilometres of shoreline along the western shore of Slokan Lake. The land will be added to Valhalla Provincial Park, which encompasses almost 50,000 hectares and protects an entire mountain ecosystem from lakeshore to high alpine. Besides protecting undeveloped shoreline and intact upland forest, this property provides habitat for a variety of wildlife species in-

cluding grizzly and black bears, cougars, wolverines, mule deer and great blue herons.

—*Ministry of Environment, April 8, 2009*

## Gutting EcoAssessment

Ecojustice has launched a lawsuit on behalf of Sierra Club Canada claiming that the federal government acted unlawfully in issuing two recent federal regulations that gut the *Canadian Environmental Assessment Act (CEAA)*.

**The Exclusion List Regulations exempt thousands of projects from federal assessments over the next two years**

The lawsuit challenges the Exclusion List Regulations that exempt thousands of projects such as highways, bridges, roads and sewer systems from facing the scrutiny of legally required federal assessments over the next two years. The lawsuit also challenges the Adaption Regulations that give powers to the Minister of the Environment to exempt any other project from federal environmental assessment that is funded under the Building Canada Fund.

—*Ecojustice, April 20, 2009*

## Court Victory on Mining

Great Lakes United, Mining-Watch Canada, and Ecojustice are hailing a landmark decision in April from the Federal Court of Canada that will force the federal government to report mining pollution data to the

National Pollutant Release Inventory (NPRI). The lawsuit, filed in 2007, alleged that the Minister of Environment broke the law when he failed to collect and report pollution information from mines in Canada under the NPRI.

In 2005, 72 American mines accounted for 27% of all US pollutants reported. Pollution data from Canada's 80 metal mining facilities will now similarly have to be reported.

—*Mining Watch Canada, April 2009*

## BC Saves on Earth Hour

Electricity consumption in BC dropped by 1.1% during Earth Hour on Saturday, March 28. British Columbians saved 72.67 megawatts of electricity from 8:30 to 9:30 p.m., the equivalent of turning off 1.5 million lights. Eighty four communities participated this year. In 2008, the overall reduction in load during Earth Hour was 2%. Hydro's community by community compilation shows several communities cutting power by over 4% while some registered less than 1% and would have dragged the overall average down.

—*BC Hydro News, April 2009*

## Good Thing It Wasn't an Oil Tanker

A container holding 72 pails of lube oil has been safely lifted out of Robson Bight, almost two years after the fuel barge it was on sank. The federal government only acted after pressure from environmental groups. Robson Bight is an ecological reserve sanctuary used by orca whales.

—*Times Colonist, May 16, 2009*

# From Our Readers

## White Pine for Griz Snacks

In your January article, "Yellowstone to Yukon," it states that the nuts of the white bark pine are a key food source of the grizzly. This was new to me and so amazing that I had to look up the tree. How do grizzly paws deal with seed hidden under scales on a cone? *Native Trees of Canada* helps somewhat in saying that the seed are released as the cone decays. I can see the bear smashing the fallen cones and with its tongue finding and licking up the dispersed seeds. What an effort to fill one's stomach!

*Uli Steghaus, Whaletown BC*

## Whoa, Nellie!

From 15 to 20% of a car's emissions are produced when it's manufactured. An electric car is no different. Next, the whole production cycle of vehicle batteries "requires so much energy that any environmental benefits are marginal," (*Alive*, March 2009). Recycling used car batteries is another problem.

Next, there is the huge problem of the energy source. Just exactly where do you think all the electricity comes from? *Alive* author Carey King said "the only way to mitigate this problem is to move away from thermoelectric energy sources such as coal, nuclear and natural gas." That leaves most provinces up the creek, and folks in BC are increasingly trying to save all their rivers and creeks from exploitation, n'est-ce pas?

In the 1990s a hairy, rugged environmentalist who was saving trees in the Klamath Knot of northern California told me, "You can't ever build an environmental car." All the research to prove that is now readily available.

Please don't tell us any more about those cute, silent, safe, environmental electric cars. It's just a hoax.

Ask instead, why people in large urban centres need private automobiles at all? What's wrong with expanding

The Watershed Sentinel welcomes letters but reserves the right to edit for brevity, clarity, legality, and taste.

Anonymous letters will not be published.

Send your musings and your missives to:

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editor@watershedsentinel.ca

transit *and* making it free? After that, make better transit available in smaller towns too. Before you "reduce, reuse & recycle" there was always supposed to be a fourth word: "rethink."

*Smokey Dymny, Little Italy, Toronto  
and Quadra Island BC.*

## Site C Video


The Peace Valley Environment Association (PVEA) appreciates the voice the *Watershed Sentinel* gives to the citizens of BC on environmental issues. We particularly applaud Maggie Paquet's recent article on Site C, "Green Energy or Greenwash?" Thank you for covering this very important issue.

We have a recently completed a short documentary, *A Black Cloud in the Valley*, about the PVEA's 30 year fight against BC Hydro's proposed Site C dam. The documentary was created in cooperation with the West Moberly First Nations, whose traditional lands are affected by the proposed project. Unlike BC Hydro, groups opposed to the project have limited resources. The documentary is designed to showcase the issues surrounding this controversial project and introduce the beautiful, historic and productive Peace River Valley to British Columbians.

*Peace Valley Environment Association,  
Fort St. John BC*

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# Climate Notebook



## Bacteria To Create Methane, Store Energy

A system using bacteria that can convert electricity into methane could help solve one of the biggest problems with renewable energy – its unreliability. Created at Pennsylvania State University, it would involve “feeding” surplus power to bacteria which combine it with carbon dioxide to create methane that could then be stored and burned when needed. The method is efficient, cheap and sustainable, as the carbon is taken from the atmosphere.

—*The New Scientist*, April 5, 2009

## Missing Sunspots

Scientists are baffled by the disappearance of sunspots on the sun and are speculating on its impact on global warming. The disappearance

of sunspots happens every few years but this time it has lasted longer. The solar wind – streams of particles the sun pours out – is also at its weakest since records began.

Sunspots went away in the 17th century, which coincided with the so-called Little Ice Age, and were active during the warm Bronze Age. Throughout the 20th Century the sun was unusually active. Around 2000, the sun’s activity began to decline, the rise in the Earth’s temperature began to slow and the rate of increase has remained constant. At the same time, atmospheric carbon dioxide continues to rise.

If the Earth cools under a quiet Sun, then an increase in the Sun’s activity since the Little Ice Age may have been a major factor in global

temperature rises. We might have overestimated the sensitivity of the Earth’s atmosphere to the increase of carbon dioxide from the pre-industrial three parts per 10,000 by volume to today’s four parts per 10,000. Alternatively the sun could be masking global warming. When it becomes more active again, rates of temperature increase could climb with a vengeance.

—*The Independent*, April 27, 2009

## Mining the Offshore... Wind, That Is

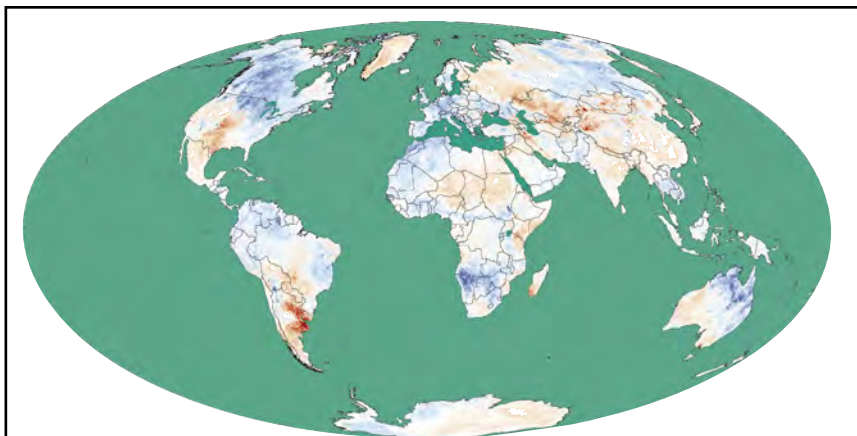
In April, the US Department of the Interior released a report that said wind turbines off the US coastlines could potentially supply more than enough electricity to meet current US demand. Even harnessing the wind in relatively shallow waters – the easiest sites for offshore turbines – could produce at least 20% of the power demand for most coastal states.

—*Los Angeles Times*, April 3, 2009

## Ozone Hole and Ice

Increased growth in Antarctic sea ice during the past 30 years is a result of changing weather patterns caused by the ozone hole, according to new research published in *Geophysical Research Letters* by scientists from British Antarctic Survey (BAS) and NASA. While there has been a dramatic loss of Arctic sea ice, Antarctic sea ice has increased by a small amount as a result of the ozone hole delaying the impact of greenhouse gas increases on the climate of Antarctica.

— *British Antarctic Survey*, April 21, 2009, [www.antarctica.ac.uk](http://www.antarctica.ac.uk)



### 2008-2009 Winter Land Surface Temperature Anomalies

You cannot judge whether the 2008-2009 winter in the Northern Hemisphere was colder or milder than usual based on the conditions where you live. This map, spanning December 2008 to February 2009, shows places where the winter was warmer than the 2000-2008 average as red, places where temperatures were near-average as white, and places that were colder than the average as blue.

—*NASA Earth Observatory*, May 9, 2009, [earthobservatory.nasa.gov](http://earthobservatory.nasa.gov)



## Partnerships to Save the Tsolum River from Copper Leachate

by Jack Minard

**On April 28th, 2009 as I sat in a Tsolum River Partnership meeting at the Ministry of Environment offices in Nanaimo on Vancouver Island, I let my mind wander back to the beginnings of how we got here.**

In 1967, a copper mine on Mt. Washington on Vancouver Island, BC went bankrupt after only four years of operation. The site was abandoned, leaving an open scar on the hillside above the Comox Valley and the Tsolum River.

Through the 1980s, fish stocks declined in the river. The abandoned mine site was generating toxic copper leachate. In 1988, a partial cap was placed over a consolidated pile of volatile rock, at a cost of \$1.5 million. Still the river declined in health. The partial cap was declared a failure, and the Tsolum slipped into oblivion.

By 1993, the river was barely able to support any fish or other aquatic life. After several years of half-hearted talk and studies, our community rallied around emerging organizations such as Project Watershed and the Watershed Assembly. Community awareness was raised about watershed issues, and in 1997 the Tsolum River Task Force (TRTF) was formed.

During those bleak years for the Tsolum, two champions emerged. Rob McCandless of Environment Canada (EC) and John Deniseger of BC Ministry of Environment were insider champions, instrumental in assisting the community to move forward, even after the presumed failure of the first cover.

In the spring of 1997, funding was received from the former Habitat Restoration and Salmon Enhancement Fund for the Tsolum River Restoration Project to be administered by the Comox Valley Project Watershed Society, with the supervision of the project under the control of the Steering Committee of the TRTF. This led to the formation of the Tsolum River Restoration Society (TRRS) in 1998.

In 1999, the Outdoor Recreation Council declared the Tsolum River the most threatened river in BC.

The year 2000 saw the publication of a report by SRK Consultants on remediation options for the Mt. Washington mine. Everyone in the partnership, from Environment Canada, the landowner TimberWest Forest Corp., engineers Moir Haug and Associates, CPR, and the BC Ministry of Environment to the TRRS agreed that to really do the job and to achieve full remediation, the site itself would require an engineered cover to provide source control. The price tag, however, was insurmountable at an estimated 6-to-10 million dollars. With \$1.5 million already gone to waste everyone was a little gun shy.

In 2000, Department of Fisheries and Oceans (DFO) declared the Tsolum River dead.

The release of the SRK report coincided with the demise of the Task Force although John Deniseger and Rob McCandless continued to champion the project from inside their ministries. Father Charles Brandt, Dave Ferguson, Jackie Sandiford and Wayne White of the TRRS, along with a growing membership, continued to shine the light of public scrutiny on the situation but the project had stalled.

In January of 2001, the TRRS resolved that the Society would not support any further studies: all the data led to “source control,” a complete cover of the old mine site. Low flows, habitat restoration, stock enhancement, community awareness, and protection of the watershed would be our focus, while lobbying for source control proceeded.

### Ministry of Environment Dedication

One of the most significant factors in this story was the dedication of the Water Quality Branch of the BC Ministry of Environment. Two data loggers were purchased and began to relentlessly capture water quality data. Surprisingly, results showed a 50-to-60% improvement through 1999.

The 1988 partial cover had begun to work. It took 10 years for the interstitial spaces in the gravel cover to plug up with detritus and the volatile rock under it to give up most of the copper. With dramatically improved water quality suddenly on the radar, interest was again sparked.

In 2000, DFO declared the Tsolum River dead.

## WATER

However, 2002 showed a slide backwards and EC asked the current landowner, TimberWest, to look at the situation and see what they could come up with. The late and much beloved Dr. Bob Willingdon, TimberWest's hydrologist, set out to help. His work led him to a small wetland that had become isolated from its creek and that could take effluent from the mine site to provide a passive wetland treatment.

In order to complete the wetland project a new partnership was formed. The members included:

- BC Ministry of Environment who monitored water quality and determined goals,
- Environment Canada which funded a comprehensive monitoring program,
- Fisheries and Oceans Canada who participated with sample collection and in situ fish bioassays,
- the Pacific Salmon Foundation which agreed to Chair and administer funding,
- TimberWest Forest Corp. which provided access, machinery, and materials to monitor the effect of the wetland, and
- the Tsolum River Restoration Society which offered volunteers and contractors to assist with sampling and was the community's voice.

In November 2003, the wetland project was completed and the results were immediate and profound with a further 35% improvement.

With water quality improving, the Tsolum River began to get some new attention. Members of the TRRS, not content with the progress however, proposed a "homemade" remediation plan. Our simple plan set out to cover the mine with organic material collected from all over the Comox Valley: utilize local firms, compost organic material, add biosolids from the Mt. Washington Resort and soils from construction and roadworks sites, mix it all together and spread it on the site. We called a meeting with MP John Duncan who took the idea and began to generate discussion amongst the agencies and champions involved.

The plan circulated while the wetland project continued to improve water quality – but that would only last for 5 to 7 years. What then? Nobody wanted to face the possibility of the wetland failing after seven years of improvement. Insects were again flourishing, in-situ bioassays saw all fish survive, and we stood the chance of losing it all again.

With the fear of a momentous backslide, a new BC Liberal Minister of Environment, Barry Penner, granted \$50,000 to create a plan to solve the problem. By 2008, a plan was developed to cover the site once and for all, at an estimated cost of \$4.175 million dollars.

The partnership expanded to include the Mining Association of BC (MABC), the Ministry of Energy Mines and Petroleum Resources (MEMPR), Natural Resources Canada and NVI Mining Ltd.

These new partners gave us technical depth, and that technical depth gave weight to our partnership with the government. The inclusion of MEMPR was key as they were a partner who could hold the money and provide comfort to the government that the money would be well managed. The phased process and peer reviewed final design gave us the credibility we needed to demonstrate we could produce a first class product.

Our insider champions provided internal lobbying for our proposal. MABC expended some of its political capital lobbying on our behalf. One of our Board member's encounters with the Premier and other Cabinet members helped keep the project in front of key decision makers. Our MLA chimed in for us whenever he found the opportunity. The "greening" of government and industry in today's climate of environmentalism also helped in this last effort to get something done.

On April 15, 2008 three provincial Ministers – Barry Penner, Kevin Krueger and Stan Hagen – arrived at the Tsolum River to announce that the province was granting \$4.5 million dollars to fully fund the cover design.

**My mind came back to the room and why we got together that sunny day in Nanaimo.** We were there to

set a schedule for commencing work on the engineered cover. The players around the table represented two provincial ministries, two federal departments, the mining industry association, a provincial and a local NGO, and the landowner, TimberWest. Representatives from the contractor, Quantum Murray, led us through the 2009/2010 workplan.

The snowpack this year is light and work will be able to start at the beginning of June. Site leveling and under drain construction could be complete by mid-July with the bitumen seal going on during the last two weeks of July. A protective coat of till will then be placed over the seal before winter. The old mine will be covered in 2009!

All it took was patience, perseverance and the passions of a great many people working together in a collaborative partnership.



Jack Minard is the Executive Director of the Tsolum River Restoration Society.

All it took was patience, perseverance and a whole lot of help!

- ✓ Locate and work with champions inside government
- ✓ Form wide partnerships; they can give you technical strength, management capacity, and credibility
- ✓ Keep your community involved through small winnable elements and public education
- ✓ Be persistent – government moves slowly
- ✓ Be patient – it takes nature time to respond
- ✓ Support your community's passion for place

# Sun Smart

**Sunscreen** has been touted over the past several decades as an essential protector from the sun's burning rays and the advent of skin cancer, but some Canadian dermatologists say that incidence rates have more than doubled in the last 20 years for all types of skin cancer. Not applying enough, not reapplying frequently and not purchasing the proper kind of sunscreen are a few of the mistakes that people make.

But what about the environmental aspects? More studies are showing that some of the ingredients in sun screens may have adverse affects on our health and the environment. As summer starts to heat up it's time to learn about the pros and cons of lathering on the lotion.

by Susan MacVittie

## Ultra-Violet Rays

Exposure to solar energy, ultra-violet radiation (UV), can cause premature aging and at worst, skin cancer. Two forms of UV radiation that reach us via the sun, sun lamps, and tanning booths are UVA and UVB.

UVA, though not as powerful as UVB, penetrates deeper into the skin and is responsible for photodamage. There's a high level of concern that UVA increases the risk of malignant melanoma, the most dangerous form of skin cancer.

UVB primarily affects the skin's outer layers, causing your skin to darken and burn. Exposure to UVB increases the risk of basal cell carcinoma and squamous cell carcinoma, two forms of non-melanoma skin cancer.

Both UVA and UVB from sunlight accounts for 90% of the symptoms of premature skin aging, including wrinkles.

## SPF

The US Food and Drug Administration (FDA) regulates a sunscreen's ability to block out the sun's ultra violet rays by designating a sunburn protection factor (SPF) number. SPF is a measure of how much solar energy (UV radiation) is required to produce sunburn on protected skin (i.e., in the presence of sunscreen) relative to the amount of solar energy required to

produce sunburn on unprotected skin. As the SPF value increases, sunburn protection increases.

There is a popular misconception that SPF relates to time of solar exposure. This is not true because the SPF is not related to time of solar exposure but to amount of solar exposure. Although solar energy amount is related to solar exposure time, there are other factors that impact the amount of solar energy such as the intensity of the sun, skin type, amount of sunscreen applied and reapplication frequency. So using a sunscreen with a SPF 30

As summer starts to heat up it's time to learn about the pros and cons of lathering on the lotion.

does not guarantee you can lie in the sun 30 times longer without burning.

Keep in mind that the SPF is for UVB rays only. There is no widely accepted comparable SPF rating for UVA sunscreens.

## Vitamin D

You may have heard that exposure to the sun is the best way to get your daily dose of vitamin D. Ques-

tions about sun protection and vitamin D deficiency led the Canadian Dermatology Association to state that most Canadians get enough vitamin D in the spring, summer and fall from their exposure to the sun in their normal daily routines.

## Proper Sunscreen

The only way to determine if a sunscreen protects against UVA and UVB radiation is to look at the ingredients.

There are currently 17 active ingredients approved by the US FDA for use in sunscreens. These filters fall into two broad categories: organic/chemical and inorganic/physical. Most UV filters are organic: They form a thin, protective film on the surface of the skin and absorb the UV radiation before it penetrates the skin. The inorganic sunscreens are insoluble particles that reflect UV away from the skin, such as zinc oxide or titanium oxide. Most sunscreens contain a mixture of organic and inorganic active ingredients.

Look for a sunscreen with an SPF of 15 or higher, plus some combination of the following UVA-screening ingredients: stabilized avobenzone,



titanium dioxide, and zinc oxide. You may see the phrases multi spectrum, broad spectrum or UVA/UVB protection on sunscreen labels, and these all indicate that some UVA protection is provided.

### Hazard or Protector?

The very ingredients in sunscreens that offer sun protection, may also have adverse side effects. Some of the chemicals used in sunscreens are feared because they are said to enter our bloodstream through ongoing topical use and may have hazardous effects once they accumulate, either in our bodies or the environment. In a disturbing investigation of 952 name-brand sunscreens, the Environmental Working Group found that 4 out of 5 sunscreen products offer inadequate protection from the sun, or contain ingredients with significant safety concerns. In a recent Australian study adverse reactions from sunscreen ingredients occurred in as many as 19% of individuals. There is also a growing awareness that sunscreen ingredients like the parabens and Benzophenone may function like human estrogens and actually disrupt the normal hormonal functioning of the body.

Others ingredients like zinc oxide and titanium dioxide, popular UVB and UVA sun blocks known for giving the skin a whitish glow, are being decreased to nanoparticles to reduce visibility on the skin. Although they have been cleared by the US FDA and US National Toxicology Program, these miniscule particles are making scientists worry, says a recent survey done at the University of Wisconsin-Madison published in *Nature Nanotechnology*, (November 2007). Their concern is about the tiny particle's ability to penetrate the skin, inducing free radical formation. They agree there haven't been enough studies to be sure of the safety of using nanotechnology in personal care products.

In Canada, although labelling is required, the nano-ingredients are

not listed as such, and companies can even not list ingredients if they are "confidential business information." Sandra Madray of Chemical Sensitivity Manitoba says this is a less than satisfactory situation.

To assist consumers in their decision making, the Environmental Working Group has created a database of sunscreen and sunblock products. Each product is scored according to its effectiveness at blocking UVA and UVB rays, as well as the amount of ingredients that have been linked to health concerns like cancers, developmental and reproductive toxicity, allergens, persistence, and bioaccumulation. Each product ingredient is given a score between one and 10 (one being the best, 10 being the worst) in

each category, as well as overall.

### Sunny Side

Regardless, of the research available it is important to remember that sunscreen use should not be seen as a replacement for sun avoidance measures, but only as a tool that sometimes helps when used in conjunction with sun avoidance measures.

So cover up, go indoors during the midday, and enjoy the heat of summer in a smart way!



### Sources:

*Environmental Working Group,*  
[www.cosmeticsdatabase.com/special/sunscreens2008/index.php](http://www.cosmeticsdatabase.com/special/sunscreens2008/index.php)  
*US Food and Drug Administration,*  
[www.fda.gov/cder/offices/OTC/understanding\\_spf\\_sunscreen.htm](http://www.fda.gov/cder/offices/OTC/understanding_spf_sunscreen.htm)

## Key Methods For Skin Cancer Prevention

**Stay out of the sun:** The sun is hottest between 11 am and 3 pm so limit your exposure during this time.

**Protective Clothing:** Forget trendy looking baseball caps – a wide brimmed hat is great for protecting the face, neck and eyes. Foreign Legion type hats are great for kids. Good quality sunglasses for both adults and children protect the eyes. Tightly woven loose fitting clothing can also provide protection. Children's swimsuits, which cover the shoulders and legs, are now starting to be made from protective material – check label for sun protective information.

**Slap It On:** Choose a broad spectrum sunscreen which protects from both UVA and UVB rays – mineral based sunblocks such as zinc oxide and titanium dioxide offer broad spectrum protection.

Sunscreen should be applied liberally enough to all sun-exposed areas that it forms a film when initially applied. It takes 20-30 minutes for sunscreen to be absorbed by the skin, so it should be applied at least a half hour before going out in the sun.

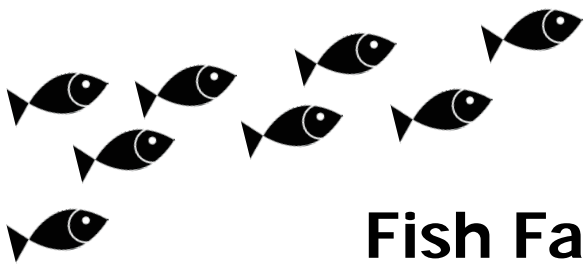
Sunscreen should also be the last product applied, especially on the face since some sunscreens can break down in the presence of water contained in water-based foundations and moisturizers.

Reapply sunscreen after 2-4 hours in the sun. Sunscreen should also be reapplied after swimming, excessive sweating, or toweling.

The daily use of a low-SPF sunscreen (15) has been shown to be more effective in preventing skin damage than the intermittent use of a higher SPF sunscreen. Some sun sensitizing medications (thiazide, diuretics, some antibiotics and antidepressants) require heavier sunscreen application and more often.

**Watch the UV Index:** The higher the UV the more important it is to take protective measures

**Do the shadow test:** If your shadow is shorter than you, seek out shade, as this means the UV rays are high.



# Fish Farm Reality Check: Is Closed Containment Possible?

*Georgia Strait Alliance fish farm campaigner Michelle Young provides an overview of the technology.*

Open net-cage salmon farming is a very controversial industry here on BC's coast and around the world. On the one hand, demand for seafood is quickly surpassing sustainable limits

address most of the negative impacts associated with salmon farming in BC simply by separating the farmed salmon from the marine environment. But is it an attainable option?

Many people are surprised to learn that there are three closed containment salmon farms operating in BC today. There are many technological variables in closed containment, and these farms reflect that. The farms vary in size from

small to medium scale, from fresh to saltwater, and from land based tanks to pens floating in the ocean. And they are variously raising Chinook, Coho and Sockeye Salmon.

However, the existing closed containment farms have many things in common. They all are successful in separating the farmed salmon

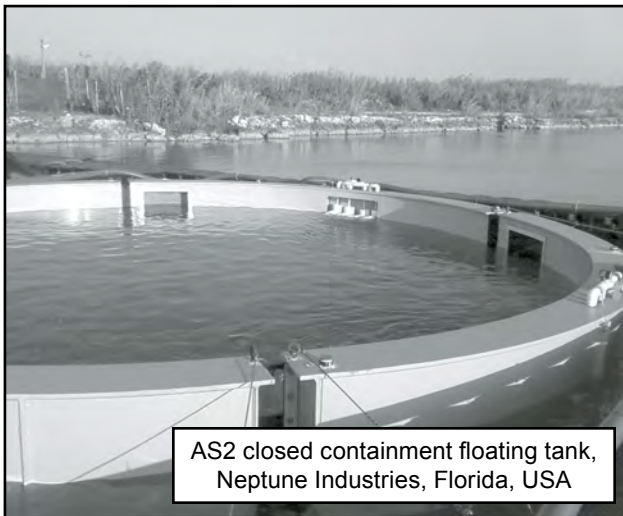
from the marine environment. None of the closed containment farms have problems with sea lice, the parasite that proliferates in feed-lot conditions and afflicts wild salmon, and none of them release untreated waste directly into the ocean. These farms and many other examples from around the world have unequivocally demonstrated that it is possible to grow farmed salmon in closed containment.

The next step is to take the many technological possibilities and develop an economically viable commercial scale operation. This is where the accountant in me becomes inter-

ested. We know that the initial costs to build a closed containment facility are higher than to build a traditional net-cage fish farm. The industry is obviously resistant to higher fish farm startup costs, given that they are already licensed to use the cheaper open system that they are familiar with. Unfortunately, the open net-cage system wreaks havoc on the surrounding ecosystems.

Salmon farmers are quick to tell us that closed containment is not economically viable. On the surface it does appear that way when you just look at the difference in initial startup costs. But comparing the economics of open net-cage technology to closed containment technologies is much more complicated than simply looking at initial start up costs, as we have to consider the full economic picture and the cost savings made possible by a switch to closed containment.

Let's consider sea lice. After assuring us that sea lice were not a problem for wild fish and that they don't come from the fish farms, the industry is now saying that they are managing lice to reduce the impact (which they still deny). Emamectin benzoate (trade-named SLICE) is the preferred treatment for sea lice on salmon farms in BC. This drug is not authorized for general use in Canada, but can only be used as an emergency measure under prescription of a veterinarian. Unfortunately its use has become common practice. As it is designed to weaken the shells of crustaceans, this chemotherapeutant may have an impact on other crustaceans like prawns and crabs. If we could measure the effect on crab and prawn fishers' wallets, and on the commercial salmon fishing, recreational fishing and ecotour-



AS2 closed containment floating tank, Neptune Industries, Florida, USA

of our oceans, and we need jobs in tough economic times. On the other hand, can we justify salmon farming at all costs to the environment? Wild salmon are exposed to parasites and diseases from feed-lot salmon farms, and this has a direct impact on returning wild salmon numbers. Then there are faeces, chemical residues and wastes from the farms dropping to the ocean floor, net entanglement of marine mammals, parasites on ground-fish found near the farms, and so on.

Closed containment is suggested to be the sustainable alternative to open net-cage technology, as it would

## WATER

ism industries due to the loss of wild salmon, the additional costs of closed containment seem a small pittance to pay.

Costs difficult to measure financially, such as the loss of wild salmon or free waste disposal for the fish farmers are currently being externalized as a burden to other industries, taxpayers, and the marine environment. These externalized costs are also offloaded onto First Nations, including impacts on their culture and their harvest of traditional food sources. Adoption of closed containment technology would mean the fish farm industry would be paying those externalized costs themselves, and this would give a more complete economic measure of their true performance.

Even when you look at it dollar for dollar, without considering these externalized costs, there are tradeoffs that will offset the initial startup cost of closed containment. For example, it costs more to filter the water intake in closed containment to ensure sea lice do not enter the system, but that closed containment salmon farmer would never need to pay for very costly sea lice treatments. It may cost more for closed tanks, but some of these systems can last 30 years or more, whereas nets from open net-cage farms need to be changed every five years. Uncertain ocean conditions such as algae blooms are another costly problem for BC's salmon

Flexible sea-based closed containment bag, FutureSea, BC, Canada



Concept of floating tank system being constructed at Middle Bay north of Campbell River, Middle Bay Sustainable Aquaculture Institute, BC, Canada

farmers. These blooms can kill whole farms full of salmon. Closed containment has the potential to eliminate entirely this cost of doing business in open net-cages.

Energy needs on a closed containment farm are often cited as insurmountable by the fish farming industry. Pumping the water into the tanks, maintaining water temperature, and water circulation can use considerable energy. Once again there are tradeoffs. As they don't have the same siting constraints, closed containment fish farms could be located near infrastructure such as roads, fish packing plants and electrical grids. This would eliminate the cost of transporting fish, feed, equipment, and crew great distances to remote farm locations as well as the need for generators. The potential for pairing closed farm facilities with alternative energy sources such as tidal and wind is significant.

With the returned health of the marine environment, these remote regions could be restored as areas for commercial and recreational fishing, ecotourism and food harvesting for local residents and First Nations.

Closed containment trial projects to date in BC have not proven to be economical, but each trial had its lessons, which will result in reduced costs the next time around. Pilot projects have yet to be

undertaken at a commercial scale, so we have not yet realized economies of scale.

The industry and government spend significant amounts of money on research and development tinkering with open net-cage technology. This money is wasted on a technology that may never be fully sustainable, and it should instead be put into developing closed containment.

The time for debating the negative impacts of open net-cage salmon farming on our wild salmon, marine environment and coastal communities is long past. Time is running out for the wild salmon, and we must take immediate action to protect them. Removing open net-cage salmon farms from coastal waters will save the wild salmon from the impacts of sea lice proliferating on the farms, and will reduce other impacts to the marine environment. A speedy transition to closed containment may very well save the industry. BC's fish farmers have the skills and resources to make closed containment an economic reality and to become global leaders in innovative new sustainable technology. That is just what our economy needs right now.



Michelle Young is a Salmon Aquaculture Campaigner with the marine conservation organization, Georgia Strait Alliance. For more information, or to find ways you can help, visit our website at [www.GeorgiaStrait.org](http://www.GeorgiaStrait.org) or email [michelle@georgiastrait.org](mailto:michelle@georgiastrait.org).

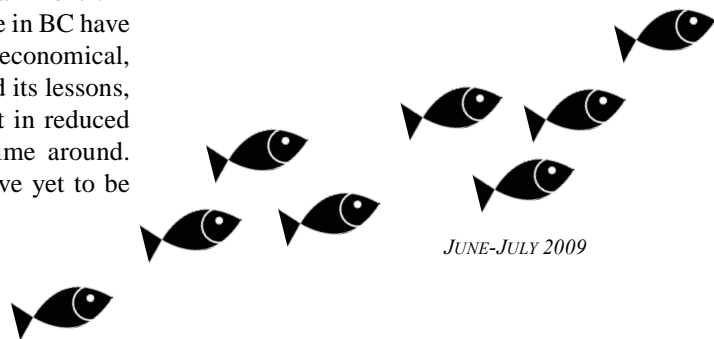




Photo by Ester Strijbos

# A Growing Movement

*A healthy response to the illness in our food supply, our local economies, and our bodies is community farming, and it is a growing movement*

*by Maggie Paquet*

Food – along with air, water, and shelter – is a need that all living organisms share. Growing our own food is one of the behaviours that sets people apart from the rest of the animals. Earlier in our social evolution, we hunted for it and gathered it from our local environment and moved on. Then, some bright spark (some say it was a woman) discovered the secret of seeds. These marvellous little packets of energy could be saved and sown in greater quantities

and in new places, places that often had other amenities favourable for human habitation, like plentiful water. The need to keep wandering in search of food was no longer imperative. Groups of humans could plant enough of a crop to enable staying in one location and have enough to feed themselves. Civilizations began to flourish. People now had more time to develop complex cultures.

Over time, and because different kinds of food grew in different kinds of places, trade networks developed. A famous one developed in western Canada called the “grease trail.” Coastal people who had access to oolichans (candlefish) made a very valuable commodity called oolichan grease that was traded far and wide for items that were not available on the coast.

Food was used as currency in many early societies. As we know, money confers a degree of power. Whoever held

the foodbasket held the power. The most powerful civilizations in ancient times were those that had secure stores of food. Leaders throughout the ages knew how important food was to their people – and their power. It seems to be something that today’s leaders have forgotten.

In a letter to the (presumed) new American president (“Farmer in Chief,” *New York Times*, October 9, 2008), Michael Pollan advised Barack Obama that high food prices can be a serious political peril. He linked food prices to national security to energy policy to health care and to climate change, and said the new president “will need not simply to address food prices but to make the reform of the entire food system one of the highest priorities of your administration...”

Just when we are all being urged to eat more fresh fruits and vegetables to help bring down rising health costs (and be healthier, of course), we find out that the price of fresh foods has risen by 22%. The two main reasons for this are shortages of water and shortages of oil increasing the cost of industrial agriculture.

Why does food production relate to climate change? Because modern food production, says Pollan, “depends on cheap energy that we can no longer depend on... [in fact,] ...the way we feed ourselves contributes more greenhouse gases to the atmosphere than anything else we do – as much as 37%...” Between the various aspects of commercial food production (pesticides, fertilisers, packaging) and its distribution, our food system consumes about 20% of all the fossil fuels we use. Pollan’s ultimate comment on food security is good food for thought, especially for our national leaders: “While there are alternatives to oil, there are no alternatives to food.”

Put into the contexts of the current global financial crisis, the western health crisis, and the massive looming “peak oil” debacle, food security and food safety require a concentrated rethink and our food supply “system” requires some re-tooling.

## **Community Farming – A Healthy Way To Go**

You are what you eat – on a molecular level, anyway. When you eat a lot of contaminated molecules, sooner or later, you get sick. The tremendous increase in heart disease, cancers, diabetes, and neurological diseases is evidence that something is amiss somewhere. It relates, in

large part, to the huge amounts of contaminants present in our air, water, and the food we eat. As well as our bodies, our food supply system is also sick, as evidenced by the many scares and recalls over the past few years. Local as well as global economies are certainly suffering. Family farms are disappearing at an alarming rate, as is good farmland, falling to the sprawl of our cities and towns. Farmers and communities everywhere are looking at ways to bring wellness to all of these at the same time. A healthy response to the illness in our food supply, our local economies, and our bodies is community farming.

The concept of community farming is inherent in a number of emerging activities, such as the local food movement, farmers' markets, even the "100-mile-diet." This particular phenomenon shot to popularity like a rocket a few years ago and, in some locales, has even morphed into "the 10-mile diet."

*Wikipedia* defines the local food movement as a: "collaborative effort to build more locally based, self-reliant food economies...in which sustainable food production, processing, distribution, and consumption are integrated to enhance the economic, environmental, and social health of a particular place" and a part of the broader sustainability movement. It is part of the concept of local purchasing and local economies, a preference to buy locally produced goods and services.

Two primary challenges face people wanting to participate in ways to get healthier food, enhance their local economies, and support farmers: the increasing age of the current crop of farmers and the loss of good farmland on which to grow crops. Other challenges include:

- Knowledge about farming is disappearing
- Low incomes, hard work, and high risks discourage new farmers
- Demand for local, organically-grown food is up, and exceeds supply
- High cost of farmland is a barrier for new farmers.

Communities, certainly farmers, are looking for – and finding – solutions. Community farms are one of these. Their goal is to promote closer interaction between farmers (producers) and consumers (the rest of us). They can help address some of the challenges faced by farmers and communities because they:



Nestled in a fertile pocket of the Ahahswinis Reserve on the edge of town, the Hupacasath First Nation's Community Garden Project has been in operation for four years. The community benefits by access to organically grown fresh food. A further benefit will be a change in attitude towards healthy organic produce as well as how the land is used for sustenance and life. For information about the project, call the office at 250-724-4041.

- Support local food systems
- Protect farmland for long-term food production through land trusts, covenants, and other means
- Give new farmers access to affordable land through long-term leases
- Provide supportive and flexible labour pools.

### A Diversity of Solutions

In response to the need to provide a safe and secure food supply, and to support local farmers and local economies, numerous approaches have been made, including a variety of organizations, co-ops, and urban farming groups that have sprung up in both the city and the country. Some operate in partnership with the Land Conservancy. Many are part of the Community Farm Network.

**Lohbrunner Farm** near Langford, west of Victoria, is a 16-acre farm that its 81-year-old owner donated to the Land Conservancy. The conservancy leases the land to three young organic farmers, who have also organized a company that grows vegetables in residential backyards and shares the produce with the property owners.

**Linnaea Farm** on Cortes Island ([www.linnaeafarm.org](http://www.linnaeafarm.org)) is a 315-acre enterprise that provides both locally produced organic foods and educational programs. It is "governed by a society whose mandate is to protect the Linnaea Farm land trust and provide public education for ecological and sustainable living."

**Haliburton Community Organic Farm**, just north of Victoria, is a seven-acre certified organic farm situated on the Cordova Bay ridge at 741 Haliburton Rd. "We strive to protect agricultural land, supply one-acre parcels of land to

Continued on Page 14 ⇨

↔ *Farming continued*

two farmers, grow and sell food at our own farm stand and at farmers markets, offer a farming apprenticeship/mentorship program, as well as workshops and facilities to professional growers and the community, promote other organic farmers, and teach growing skills at our weekly community work parties.”

One of the oldest farming and sustainability organisations in BC is the lower mainland’s **FarmFolk/CityFolk**. Their website ([www.ffcf.bc.ca/](http://www.ffcf.bc.ca/)) says “FarmFolk/CityFolk is a non-profit organization that connects farms and cities across British Columbia to create and support local, sustainable food systems. Our projects protect agricultural land, help farmers access farmland, support local and small-scale growers and producers, and connect local food communi-

ties through education, communication and celebration.” They define the community farm as “a multi-functional farm where the land is held in trust for community rather than owned privately. It is managed by a community group or cooperative. The primary focus...is local food production using sustainable agricultural practices.”

The **Community Farms Network** is a “mutually supportive network of community farms in BC to share best practices in sustainable organic agriculture and cooperative farming and living (see the description and list on FarmFolk/City Folk’s website, Programs). Also see [www.bcfarmfresh.com/](http://www.bcfarmfresh.com/)



## Arrowvale Farm in the Alberni Valley

by Bob Collins

We have been farming in the Alberni Valley of Vancouver Island for about 30 years, mostly as a dairy farm, but also as commercial vegetable growers. We’ve lived through all the lightning strikes to the small family farm over these past decades and re-invented ourselves after every one.

There is no place for our small farm in today’s globalized, multinational, genetically modified, over-processed, convenience packaged, bar-coded, best-before-dated, nationally advertised, and air-conditioned-shopping-comfort food world. We believe there is a place for our farm in our community, however. We’ve gone back to a more sustainable future.

The “modern” food system is dependent on petroleum energy, and its proponents claim this has made agriculture more efficient. Efficient? In 1940, each calorie of petroleum energy used in producing, processing, and distributing put 2.3 calories of food on the average table. In 2008, it takes 10 calories of petroleum energy to put 1 calorie of food on the average table. Clearly, such “efficiency” is unsustainable.

In 1940, there were more farms. They were smaller.

Most grew a mix of crops and animals, and what they produced was sold in the local community. They practised crop rotation

to control weeds and pests and to maintain fertility. Animals were born and raised on the farm.

W h a t  
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ate was grown on the farm. Their manure was returned to the farm’s fields, unlike the industrial model that confines thousands of animals far from any fields whatsoever. Author and farmer Wendell Berry notes that modern agriculture has taken a perfectly sustainable solution and divided it into two problems: lack of fertility on the land where the crops are grown, and volumes of polluting manure at the big feedlots and barns.

Food in 1940 was fresher. It tasted better. Its carbon footprint was more like a mouse’s than an elephant’s. Food miles were 15 to 20 times fewer than today. Grass-grown animal products were 2 to 5 times higher in omega-3 fatty acids and conjugated linoleic acids. There was no epidemic of obesity and diabetes. There was more food security. When someone spent money for food, they knew that much of it would wind up in the pocket of the person who grew it and that it would quickly work its way through the local economy.

We’ve operated our farm as a family partnership in the Alberni Valley since 1980. We have 68 riverside acres, 55 of which is fertile alluvial plain with excellent loam soil as much as 10 ft deep. We are blessed with ample water from the Somass River. About 45 acres are cleared and cultivated. Most is grass to support our livestock. We have a 25 x 50 ft greenhouse, and two acres are devoted to vegetables and flowers. We produce beef, eggs, chicken, and vegies, and plan to add pork and strawberries.

We are developing a Food Partnership Plan for people who share our concerns about a secure food future. Food partners will affect what and how much we grow. We are committed to environmental diversity and stewardship, and are a “Conservation Partner” with The Land Conservancy.

Our weekly Saturday market and pancake breakfast started in May. We have some like-minded neighbour farmers who join with us and add to the diversity of what we can offer. If you have questions, or would like to talk about food partnerships give us a call at 250 723-7948.

### Eat Local, Eat BC

**Around BC**, for information about what’s in season in BC, as well as where to find local BC farms, and restaurants that feature these local foods, check out the tremendous resources at [www.eatbc.com](http://www.eatbc.com) You can even enter your name in a monthly draw for a \$50 gift certificate to a BC restaurant. The site is sponsored by a wide range of BC farm associations as well as the British Columbia Agriculture Council and the British Columbia Restaurant & Foodservices Association.

# Blaming the Animals for Factory Farm Flu

by Cathy Holtlander

Pigs are taking the rap for the global outbreak of swine flu, but the pandemic was never their fault. Influenza is a social disease, and this pandemic is a social phenomenon. We're in the thick of it now and public health agencies around the world are doing their best to minimize suffering and limit deaths.



NAFTA triggered the same restructuring process in Mexico when farmers there were forced to compete with cheap imports from the US. Some farms grew bigger and more industrialized – many went out of business. As time went on, there as here, the minimum size of a commercial hog barn grew bigger and bigger. Mexico began

But if we take the time to understand the social ecology of influenza we will be better equipped to prevent future occurrences. Swine flu is merely the latest symptom of a chronic economic disease characterized by corporate control of food production, exploitation of workers and animals, financial speculation and aggressive global trading.

In Mexico, as in Canada and the United States, hog production underwent massive structural change over the last 25 years owing to new policies designed to ramp up production, shift it to vertically integrated corporations, and sell our product to other countries cheaper than they produce it themselves. Communities once self-reliant in food production are now dependent on imports. Globalization remodelled agriculture into agribusiness, and food became a mere commodity on world markets.

In the past, most North American hogs were raised on family farms dispersed throughout the countryside. Hogs were butchered on farms or at local abattoirs and regional packing plants. Supply and demand were pretty much in balance, and there was little export.

US-based Murphy Farms (bought out by Smithfield during the 1990s) was the first company to start raising hogs indoors using an assembly line approach. The new production model arrived in Quebec around 1994 and spread to the rest of Canada thereafter as federal and provincial policies and regulations were amended to encourage its expansion.

Where once a large hog farm boasted 100 sows, 5,000-sow operations producing tens of thousands of hogs per year soon became the norm. Smaller outfits went bankrupt. A few small diversified farms continue to raise smaller numbers of hogs for their local markets, but today most pork consumed in Canada comes from factory farms. In fact, Canada produces far more pork than we can eat, so we export roughly half of our production.

to pursue an export pork agenda and companies such as Smithfield Food moved in to take advantage of the country's low wages – reducing costs while centralizing production in fewer, larger facilities.

Without the backing of Canadian, US, and Mexican policy-makers and the trade agreements they signed, the large factory farm environment in which this swine flu pandemic evolved would never have existed. This disease is one more cost of the export-oriented cheap food regime that has taken hold in North America and around the world.

If Canadians are serious about preventing the next, perhaps more deadly pandemic, we must adopt food policies that respect the health of workers, the integrity of animals, the skills and knowledge of small farmers and the meaning of food culture in our lives.

Livestock production must be moved out of factory farms. The crowded, stressful conditions for both workers

and animals in factory farms create myriad extra opportunities for viruses and other pathogens to evolve into new and potentially dangerous diseases. Quantities produced by our agricultural sector should reflect domestic consumption levels. We should allow other countries to produce the pork they need and offer their farmers the opportunity to earn a decent livelihood. A major portion of agriculture safety net payments in Canada are propping up the hog industry – investing those dollars towards an agriculture system that takes care of land, people and animals and promotes health is a better use of public funds. We urgently need to get beyond factory farming.

**This disease is one more cost of the export-oriented cheap food regime that has taken hold in North America.**



Cathy Holtlander works for Beyond Factory Farming, a national advocacy group for socially responsible livestock production in Canada, [www.beyondfactoryfarming.org](http://www.beyondfactoryfarming.org)

# Conscious Coffee

## Fair Trade? Organic? Shade Grown? What Is?

by Susan MacVittie

Sipping on a morning cup of Jo goes beyond the quick fix of liquid wake-up – it's now a reflection of the drinker's ethical values. In the 1980s a rise in ethical consumerism, driven by issues like child labour and environmental degradation launched the branding of organic, fair trade and union-made products. For coffee-drinkers this means that there is now a befuddling assortment of coffee to choose from. Knowing which one is the real ethical deal is a lesson in the coffee commodity chain.

### Bean 101

Coffee has always been a boom and bust crop in Latin America and Africa with little of the wealth going towards the growers, pruners and pickers. Although it is the second most traded commodity next to oil on the global market, in many countries a day's wages for picking coffee beans wouldn't buy a fancy cup of java at your favourite coffee shop.

Traditionally, coffee is produced on small farms under the forest canopy along with other crops without the need for chemical fertilizers. The shading trees fix nitrogen in the soil, and their leaf litter is home to beneficial insects that devour nematodes – soil borne organisms that attack roots. The canopy also provides rich habitat for species, especially migratory birds. As these small farms began to be absorbed by large mono-cropped chemical-dependant plantations the fair trade movement arose in the United States and Europe out of a concern for the workers and the environment. Since that time there are various organizations that administer and regulate ethical coffee certification which has led to a plethora of labeling schemes to assist consumers in their decision-making.



### Organic

Organic coffee is grown without the use of synthetic substances such as pesticides, herbicides and fertilizers. Because it helps to reduce the need for pesticides and fertilizers, a majority of organic coffee is shade grown, which keeps the birds singing and is a factor that often improves taste. The shade slows down the growth of coffee, which results in the production of more

sugars and natural chemicals in the bean responsible for the desired acidity. Shade-tree grown coffee that is certified organic and meets the requirements of the Smithsonian Migratory Bird Conservatory may use the Bird Friendly logo.

As of July 2009, those who want to market and trade organic products in Canada, including imported goods, must meet the Canadian Organic Standards (COS). To meet COS the product must contain at least 95% of organic ingredients and be certified according to the recommendation of the Canadian Food Inspection Agency. Certified organic products must bear the name of the certification body but the use of the official Canada Organic Logo is voluntary, so it will not appear on all certified organic products.

In the meantime look for these organic certification logos – Demeter, USDFA, EcoCert, QMI Organic, and Quality Assurance International (QAI). Organic certification is a production process certification, not just the certification of the end product.

In addition, decaffeinated organic coffee must use a certified organic decaffeination process to maintain the organic integrity of the beans. One of the most popular processes uses only water rather than chemicals to extract the caffeine. Coffee using this method is labeled Swiss Water process.

### Fair Trade

The coffee crash of 2001 reminded the 25 million coffee farmers around the world how volatile the international coffee market can be. Almost overnight international prices crashed and many farmers were forced out of business.

Fair trade certification focuses on labour and trade standards to provide small farmer co-operatives a guaranteed price above the conventional market. It establishes a direct trade relationship with suppliers in developing countries, eliminating the middlemen. Fair trade also levies a small premium that must be dedicated to improving quality of life including environmental, sustainable practices with no child labour.

TransFair Canada manages the Fair Trade Certified logo in Canada and is a non-profit that provides third party product certification. It is one of 17 national Fair Trade Labelling initiatives worldwide operating under the Fair Trade Labelling Organizations International (FLO). FLO is the international body that regulates Fair trade practices and they define a farm as a family farm that is part of a large democratic co-operative which cannot be structurally dependant on hired labour.

### Green Gimmick

The growing trend in consumer concern for ethical business practices has not gone unnoticed by the multinationals who have historically made their money off the backs of underpaid labourers and fast-growing cash crops. The coffee hucksters at Starbucks are now one of the largest buyers of Fair Trade Certified coffee – doubling its purchases to 40 million pounds in 2009 and even the champion of ‘fair’ faux pas, McDonald’s, now serves organic, Fair Trade coffee in some of its Eastern US locations. To some in the Fair Trade movement, the new competition like Starbucks, is using Fair Trade as a marketing ploy, adopting the concept as a ‘brand’ by offering a single Fair Trade Certified blend out of dozens in their store. As corporations get more involved there is fear that some Fair Trade provisions may be de-emphasized to accommodate big business.

### The Challenges

Not having the certification logos on the coffee bag doesn’t mean it is unethical. Many farmers whose coffee is perfectly deserving of being Certified Organic, are suffering because they simply cannot afford the certification fees. Indeed, most can’t afford chemical pesticides. (The

global credit crunch has prompted Brazilian farmers to use less fertilizer which market analysts predict will lead to smaller crops and a price increase of 26%.) As well, the requirements for certifiable production operation can be complicated. In Uganda, most commercial organic coffee farms begin with donor support to cover technical support costs.

In addition, Fair Trade coffee co-operatives represent a narrow swath of coffee farmers. Many growers are not eligible for Fair Trade certification because they are not part of a co-operative, a Fair Trade non-negotiable that leaves out small independent farms, family owned farms and any multinational that treats its workers well. Fair Trade prices are still not necessarily high enough to bring farmers out from poverty because the Fair-Trade-Organic price advantage has not kept up to inflation. Also, Fair Trade pricing does not take into account any difference in cost of production or cost of living between regions. Others have criticized Fair Trade’s price-driven model, claiming it unfairly rewards coffee with low production costs instead of coffee that tastes better. The Fair Trade

pricing works well for commercial quality coffee, but high quality coffee is not rewarded, unless the buyer wants to purchase at a higher price (which conscientious buyers often do).

Buying Fair Trade and Certified Organic is a good

way to ensure that you are helping farmers and the environment. But it’s not the only bean on the block. There are also a host of non-profit organizations who travel to coffee-growing regions and engage in direct trade with farmers. One such organization, World Community Development Educational Society (WCDES), in Courtenay, BC established a direct trade relationship with coffee growers in Nicaragua and sells their organic, fairly traded, bird-friendly coffee. The farmers are guaranteed a fair price and a share of the profits go back into community development projects.

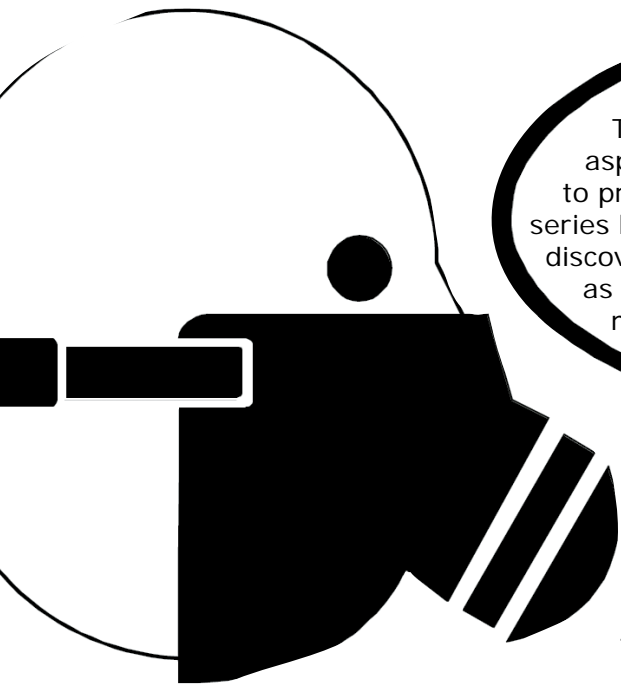
In the end, certified or not certified, it is the personal connection between the buyer and the farmer that ensures the quality of the product and the quality of life for the grower. These ‘ethical’ relationships percolate through our communities to ensure our java is fair to the last drop.



*Canadian Organic Growers, [www.cog.ca](http://www.cog.ca),  
TransFair Canada, [www.transfair.ca](http://www.transfair.ca)*

Susan MacVittie works with WCDES in the Comox Valley.





## On the Yellowcake Trail

This series of articles, "The Yellowcake Trail," tracks all aspects of uranium in Canada from the mining and milling, to processing and use, throughout its eighty-year history. The series begins with the history of uranium in Canada, from its initial discovery to the rapid development of mines that placed Canada as the prominent world leader in uranium production. Each mine has a story and each story has a common thread and legacy.

to understand the detrimental impacts of uranium mining, processing and use to our country and to the health and environment of communities affected by these operations. At every stage there is polluted air, land, and water, wreaking permanent destruction on the health and environment of communities – especially, native communities, their food sources, and their natural habitat.

Once exploration and mining starts, there is no end – the mines can be closed and abandoned as often is the case, but the radioactive tailings remain.

*by Anna Tilman*

### Fatal Attraction

Yellowcake is the bright yellow uranium powder produced when raw uranium ore is crushed and purified. It is actually a mixture of uranium oxides, mostly  $U_3O_8$  (uranium trioxide), and ranges in colour from yellow to orange to dark green. It is this yellowcake that is packaged in steel drums, traded and sent across the world to be further processed, converted to different forms, enriched and used in the manufacture of nuclear fuel or bombs.

The yellowcake trail is lined with environmental devastation, sickness and death. The nuclear industry has always been a law unto itself, sheltered by governments promoting the industry as a safe and clean means of satisfying the insatiable demand for energy. Yet no insurance company in the world will sell liability insurance to a nuclear power plant. Nuclear scientists and engineers strongly endorse nuclear power, caught up in their fascination with the unique properties of uranium and the power it unleashes.

Nuclear (radioactive) waste is deadly to human beings in amounts as small as a millionth of a gram, and we have produced it in hundreds of thousands of tonnes. It is already leaking out of totally inadequate containment, not only from mine sites, refineries and nuclear power plants, but also from nuclear weapons programs. There is no way to get rid of it and it remains lethal for millions of years.

For decades, Canada has been the world's largest producer of uranium, home to the richest ore bodies, the largest uranium mine in the world, and the largest publicly traded uranium mining company – CAMECO (Canadian Mining and Energy Corporation). As Canadians, we need

### Early History of Uranium in Canada

Canada's foray into uranium mining began in 1930, when a prospector for Eldorado Gold Mines discovered pitchblende, a uranium-bearing mineral, on the shores of Great Bear Lake in the Northwest Territories, about 450 kilometres north of Yellowknife. The ore body was one of the richest known uranium deposits in the world.

At that time, radium, a radioactive decay product of uranium, thought to be a miracle cure for cancer, commanded prices as high as \$75,000 per ounce in the 1930s. Uranium itself was only incidental and of no economic interest. So in 1932, Eldorado built a radium refinery in Port Hope, Ontario, 5000 km away from Port Radium, the mine on Great Bear Lake.

It took about 74 tonnes of ore to yield little more than 3 grams of radium. Dene men from the local community of Déline, the only inhabited community on Great Bear Lake, were hired to carry cloth sacks of radioactive ore to the shipping sites. The community later became known as a "village of widows."

By 1940, World War II was underway. The horrors of radium poisoning were revealed. The overheated and glutted radium market collapsed. All radium mines were closed, including Port Radium. German scientists had already discovered that uranium atoms can be split (fissioned), releasing vast amounts of energy. So uranium took centre stage in the world and acquired strategic importance.

## THE LAND

In 1942, the federal government bought out all shares of Eldorado and established Eldorado Mining and Refining Limited as a Crown corporation with a national monopoly on prospecting, mining, and processing uranium. Port Radium was re-opened in 1942 in secrecy and was contracted to supply uranium to the US army for the "Manhattan" project to build the first atomic bomb and, after the war, to the US Atomic Energy Commission.

The Port Hope refinery played a critical role in all war activity. It was the only facility in North America for refining radioactive materials such as uranium. The huge piles of refinery residues dumped in the harbour and around the town provided an easy source of uranium. Along with the uranium sent from Port Radium, rich uranium concentrates from the Belgian Congo that had been secretly stockpiled in New York were refined at Port Hope.

The Port Radium mine was decommissioned in 1984, but a further clean-up of an estimated 1.7 million tonnes of radioactive mine tailings has only recently been ordered, after more than 60 years.

The Port Hope refinery continues to operate today as the oldest uranium refinery in the world.

### The Postwar Cloak of Secrecy

When an industry develops as a result of war and military security, as the nuclear industry has, then it comes as no surprise that the industry is enveloped with secrecy, that the public are not being informed, that governments coddle, protect and cover up for the industry.

It was the US-led development of the atomic bomb and the subsequent nuclear arms race in the 1940s that really resulted in the nuclear industry and uranium mining taking off. The US government sought a reliable supply of uranium for its nuclear weapons program; the Canadian federal government willingly assisted. Canada became the leading uranium exporter in the world.

The ban on private prospecting was lifted in 1947. By the early fifties, Canada was the scene of the most dramatic and widespread prospecting boom in its history. Thousands of radioactive strikes were reported. By 1959, 23 mines with 19 treatment plants were in operation in Canada, spread across Saskatchewan, the Northwest Territories and Ontario. Some of these operations were small, others were huge. But they all share a common fate: a legacy of waste and contamination of waterways that continues to today.

**Beaverlodge:** During its lifetime from 1953 to 1982, the Eldorado mines at Beaverlodge, north of Lake Athabasca in the northwest corner of Saskatchewan, produced over 20,000 tonnes of yellowcake. The abandoned mines have yet to be reclaimed although there are currently proposals



### Uranium Tailings - Hidden Dangers

Uranium mining pumps radioactivity into the environment for millennia to come. Canada has well over 200 million tonnes of radioactive waste, called uranium tailings, from mining operations. 85 percent of the radioactivity in the ore remains behind in that crushed rock. The effective half-life of this radioactivity is 80,000 years. That means in 80,000 years there will be half as much radioactivity in these tailings as there is today.

As these tailings are left on the surface of the earth, they are blown by the wind, washed by the rain into the water systems, and inevitably spread. In addition, the tailings are continually generating radon gas. This deadly gas can easily travel 1,500 kilometres in just a few days in a light breeze. As it drifts along, it deposits radon daughters, radioactive by-products, including polonium, on the vegetation below. Radon daughters are found in animals, fish and plants thousands of miles away from where the uranium mining is done.

Once the mining companies close down, who is going to look after this material forever? How does anyone, in fact, guard 200 million tonnes of radioactive sand safely forever, and keep it out of the environment?

—Gordon Edwards,

<http://www.ccnr.org/salzburg.html>

to carry out studies to this effect. Dam failures have been releasing tailings into Lake Athabasca.

**Rayrock:** This underground uranium mine, located 145 kilometres northwest of Yellowknife in the Northwest Territories, was operational for only two years, from 1957 to 1959, at which point it was abandoned by its owners. During its operations, the mine yielded only 207 tonnes of uranium concentrate (yellowcake). Over 70,000 tonnes of radioactive tailings were "contained" in two basins, with the potential to leak metals, both radioactive and stable. The site also emits radon gas. In the 1990s, the Department of Indian and Northern Affairs remediated the site, and it will be monitored once every 10 years for a further 100 years.

**Bancroft:** This area in Ontario southeast of Algonquin Park was the site of radium mining in the 1920s and 1930s, and went through two uranium booms from 1956 to 1964 and from 1976 to 1982. Its three underground mines, all of which were abandoned, produced about 6,700 tonnes of uranium oxide.

**Elliot Lake:** The "Uranium Capital" of the world, the Blind River-Elliot Lake area of Ontario had 12 uranium mines by 1960. All mining was underground at a depth of 170 to 950 metres. The low grade ore was plentiful. These mines accounted for about 80% of all uranium produced in Canada.

Within about twenty years of operation, more than 30 dams, built to contain uranium tailings, failed, dump-

*Continued on Page 20* ⇨

↳ *Yellowcake continued*

ing nuclear waste and chemical toxins into the Serpent River watershed which flows into Lake Huron. By 1976, the entire Serpent River system including more than a dozen lakes, was badly contaminated for 80 kilometres or so downstream. The Serpent River system was identified by the International Joint Commission as the largest single contributor of radium contamination to the Great Lakes.

By 1996 when the mine finally closed, over 120,000 tonnes of yellowcake had been produced from the Elliot Lake mines, but over 170,000,000 tonnes of radioactive tailings are left behind.

**Boom & Bust**

The post-war phase of Canadian uranium production peaked in 1959 when more than 12,000 tonnes of uranium was produced. But as fast as it began, the boom came to an end when, in November 1959, the US Atomic Energy Commission decided to purchase all its supplies from US sources and not to renew any Canadian contracts.

Over the next few years the number of mines declined to four. Uranium production in the Bancroft area and at Beaverlodge ceased in 1982 and the last of the Elliot Lake mines closed in 1996.

The “nuclear” appetite had declined. Grassroots peace movements sprouted up around the globe, demanding some form of control and disarmament of nuclear weapons. The Nuclear Non-Proliferation Treaty (NPT), designed to limit the spread of nuclear weapons, came into force in 1970. Canada’s position, as expressed by then Prime Minister Pearson, was that no uranium from Canada would be used for weapons.

**The Dawn of Nuclear Power**

A new era for uranium developed in the latter part of 1960s, spurred on by the demand for electricity-generating nuclear power.

The first nuclear power plant in Canada, the Nuclear Power Demonstration Plant at Rolphton, Ontario, was operating by 1963, using the CANDU (Canadian Deuterium-Uranium) design principles. The first large-scale commercial nuclear power station, Ontario Hydro’s Pickering reactor, was operational in 1971.

But this time Saskatchewan became the new uranium capital of the world. In 1988, the richest uranium find in the world occurred at McArthur River. The mine started production in 1999.

Saskatchewan became the sole province in Canada producing uranium and remains so today. Ontario’s uranium mining period seemed to have ended.

The two key players in uranium mining in Canada are AREVA, a French owned company, and Cameco, a private Canadian company. AREVA is the largest nuclear power generating company in the world, and ranks third in total uranium production. Cameco was formed in 1988 from two crown corporations, Eldorado Nuclear and Saskatchewan Mining Development Corporation.

**The Athabasca Basin – Unique**

The Athabasca Basin, an area of about 100,000 square kilometres, is located primarily in Northern Saskatchewan, spanning the Alberta-Saskatchewan border. The Basin adjoins the Peace-Athabasca Delta, one of the largest freshwater deltas in the world, providing habitat for water birds, including the endangered whooping crane, and wood bison. Canada’s largest national park, Wood Buffalo National Park, designated a UNESCO World Heritage site, includes part of the Delta.

When it comes to ore bodies, the Athabasca Basin is unique. The largest and richest uranium deposits in the world are found here. Most ore deposits of uranium worth mining are in the order of 0.1% to 2%. But ore bodies in the Basin far exceed those grades (ranging from about 0.5% to over 20%). For example, the McArthur River mine is the highest-grade uranium mine in the world, averaging about 22% uranium, more than 100 times richer than most mines.

Mining in the 1980s and 1990s was primarily by the

**Canada reigns supreme in production**

- It has the world’s largest reserves of high-grade low-cost uranium.
- It has consistently been the world’s largest producer of natural uranium, producing about one-third to one-quarter of global production). Australia places a close second followed by Kazakhstan.
- 85% of Canada’s uranium yield is exported, primarily to United States, the European Union, and Japan. The remainder fuels the CANDU reactors in Canada.

open-pit method as the deposits were near the surface. Surface mining is more economical than underground mining and, combined with the very high ore grade found in the Athabasca Basin, made this uranium very competitive in world markets. In the words of the nuclear industry, “The high ore grade also requires that great care be taken to ensure radiation protection for workers.” At the McArthur River mine, which produced 8,500 tonnes of yellowcake in 2007, remote-control raise-boring methods are used for mining.

**Mining Kingdom, Uranium Rush**

One fifth of all mineral exploration programs in the world will be done in Canada, well over half by foreign companies. With uranium re-emerging as a star mineral commodity, the uranium rush is on. Uranium prices have gone from a low of \$7 per pound of yellowcake (U<sub>3</sub>O<sub>8</sub>) in 1968 and 1990 to the current price of about \$78.

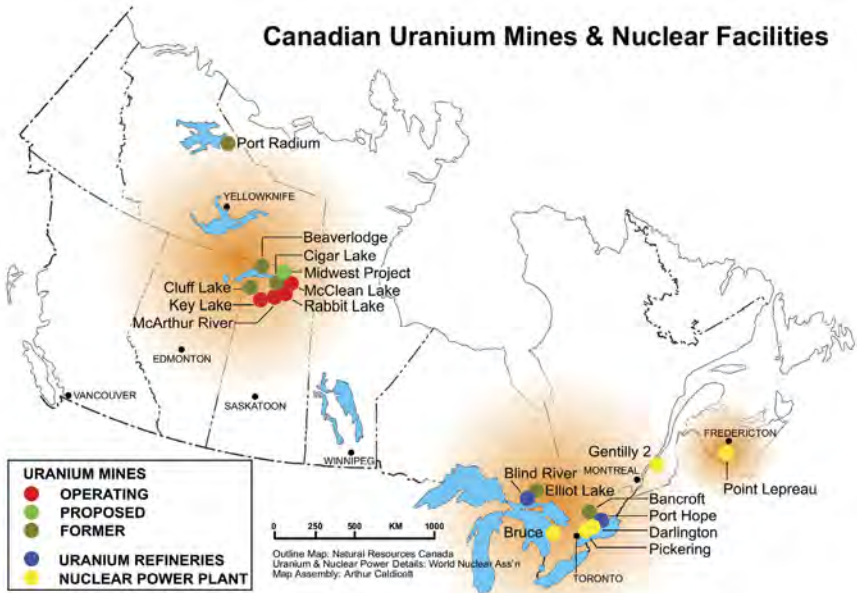
Active exploration for uranium is underway in Saskatchewan, Alberta, the Northwest Territories, Yukon, Nunavut, Manitoba, Ontario, Quebec, New Brunswick, Newfoundland and Labrador, and of course, the eastern, central, and western Athabasca Basin, where over forty companies are active.

The exploration for uranium, mostly on or near First Nations land, is encountering fierce opposition from many communities and organizations. In some cases, this has led to the imprisonment of protestors, such as the highly-publicized arrest and imprisonment of a former Ardoch Algonquin chief in Ontario, after he refused to obey a court order to stay away from a proposed mine site on traditional territory.

In Canada, mining is usually governed by provincial regulations. Uranium production is under federal jurisdiction via the Canadian Nuclear Safety Commission which regulates uranium mines and mills. There are significant variations in provincial restrictions on exploration and mining uranium. For example:

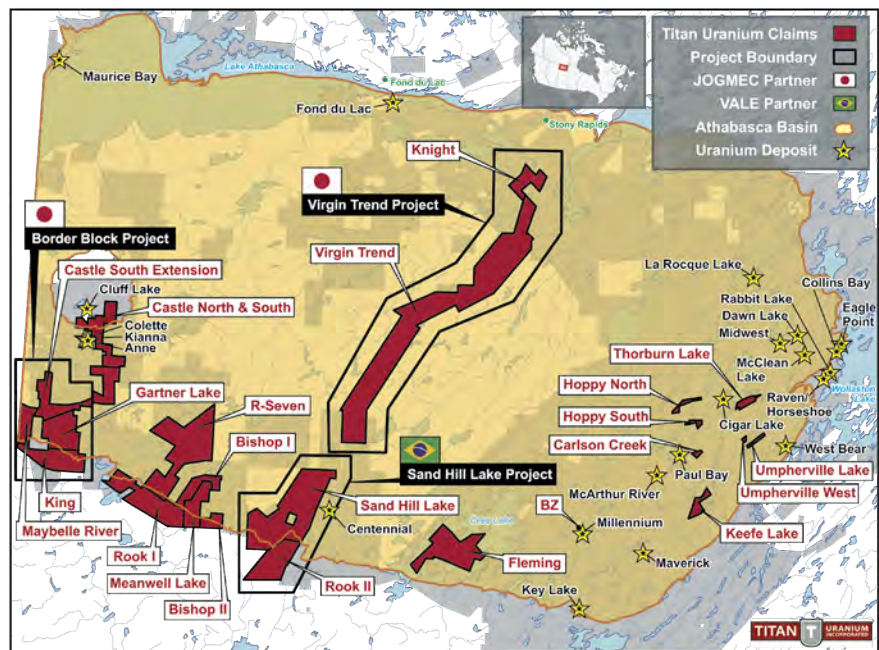
- British Columbia has a long-standing moratorium on uranium mining and exploration. It was first introduced in 1980, and has been recently renewed.
- Nova Scotia established a moratorium in 1982, but there are some indications that the province may lift it.

**Canadian Uranium Mines & Nuclear Facilities**



Map by Arthur Caldicott with sources from World Nuclear Association.

**Exploration and mining sites in Northern Saskatchewan**



Source: Titan Uranium

- In July 2008, New Brunswick enacted new regulations to limit uranium exploration and the staking of claims on municipal land, and in watersheds and fields with private wells or within 300 metres of private homes.
- On April 8, 2008, the Nunatsiavut Government placed a three-year moratorium on mining and development of uranium on Labrador

Inuit Lands. The moratorium does not apply to exploration. The issue is to be revisited after March 31, 2011.

- In 1990, residents of Baker Lake in the Thelon Region of the Nunavut voted to ban uranium mining and exploration in their region. However, in September 2007, the ban was overturned.

Continued on Page 22 ⇨

↳ *Yellowcake continued*

- 20 Ontario municipalities, including Ottawa, have called for restrictions, including moratoria, on the exploration and mining of uranium.

**Leaving No Stone Unturned**

The nuclear industry, including prospectors and mining companies, leaves no stone unturned in their search for uranium. Since uranium is ubiquitous, any place is fair game for exploration, provided the price of uranium warrants it. Resistance to their operations can be easily overcome, particularly when governments are favourable to their operations.

In the words of Donna Dillman, a well-known activist in the struggles against uranium exploration in the Sharbot Lake area in Ontario, "Currently, there are numerous groups in Canada and around the world resisting uranium exploration and mining. So it is essential that we come together as one voice. When we do this, and only then, will the media and government give the issue the importance it deserves."



An extensive referenced version of this manuscript can be found at [www.watershedsentinel.ca](http://www.watershedsentinel.ca)



**Upcoming Issues will cover Next Steps on the Yellowcake Trail: Nuclear power, weapons and waste**

Anna Tilman is a researcher who has worked on several toxic issues, especially mercury. She is a Board member of the International Institute of Concern for Public Health.

**For More Information**

- Gordon Edwards, Canadian Coalition for Nuclear Responsibility (CCNR) [www.ccnr.org](http://www.ccnr.org)  
MiningWatch Canada, [www.miningwatch.ca](http://www.miningwatch.ca)  
Lorraine Rekmans et al., "This is my Homeland," Serpent River First Nation, 2003  
National Film Board, "Uranium," 1990  
Canadian Nuclear Association, [www.cna.ca](http://www.cna.ca)  
Rosalie Bertell, "No Immediate Danger - Prognosis for a Radioactive Earth," 1985, International Institute of Concern for Public Health, [www.IICPH.org](http://www.IICPH.org)

**The Story of Baker Lake**

Baker Lake, Nunavut's only inland community, with a population of 1800, is situated at the mouth of the Thelon River in the Kivalliq region of Nunavut. In the late 1980s, a large low-grade deposit of uranium was discovered in the Thelon Basin, 80 km west of Baker Lake, by Urganengesellschaft Canada Ltd., a German mining company.

In 1990, shortly after the discovery, the community of Baker Lake held a plebiscite and voted 90% to ban the mining and exploration of uranium outright.

When Nunavut became autonomous on April 1, 1999, land rights changed. Twenty percent of the land is owned outright by the Inuit people, who also gained about 2% of the subsurface rights. Most of the region's uranium is owned by the Inuit.

The Nunavut Tunngavic Inc (NTI) was created following the land settlement to manage Inuit-owned lands and subsurface rights. In September 2007, the NTI overturned the ban on mining and exploration. By 2008, 28 uranium prospectors were drilling the tundra of Nunavut. Huge mining companies opened shop in the territory, promising employment, partnerships and royalties to Inuit.

AREVA, along with two partners, took over the site deserted by its previous owner, Urganengesellschaft. The ore-grade is only about 0.24% but the estimated resources, about 67,000 tonnes of yellowcake, are considerable. A mine and mill complex is planned to start up in 2015.

Meanwhile, the NTI have also negotiated a partnership for another uranium mine at Angilik, just west of Baker Lake. The NTI have assured the Inuit people that "nothing will be done without their approval, and [it] would support a mine only if the uranium were used for peaceful purposes and only if it will benefit the Inuit."

The unemployment rate in many communities in Nunavut is in the neighbourhood of 70% but some fierce opposition remains in the community, particularly over concern for the well-being of the Caribou herds.

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# Mill Watch

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## Mercury in Fructose Corn Syrup

In January, an article in the scientific journal, *Environmental Health*, revealed that mercury was found in nearly 50 percent of tested samples of commercial high fructose corn syrup (HFCS). HFCS use has skyrocketed in recent decades, replacing sugar in processed foods. HFCS is made using caustic soda to separate the corn starch from the corn kernel. It is produced in industrial chlorine (chlor-alkali) plants, some of which in the USA still use mercury cell technology to produce caustic soda, which gets polluted.

—*Institute for Trade and Food Policy, January 26, 2009*

## Pulp Worker Layoffs

A *Reach for Unbleached!* report on mills (October 2008) revealed that layoffs from pulp and paper mills amounted to about 13,500 across the country from 2005 to mid-2008. The hardest hit provinces were Québec, Ontario, BC and New Brunswick.

Since then, further devastating losses have occurred. In total, approximately 3800 additional layoffs in the industry occurred in just a nine-month period, from June 2008 to March 2009 (Canadian Forest Service, Natural Resources Canada). The latest slate of BC layoffs results from indefinite closures at the Crofton and Campbell River mills.

The workforce has been reduced by over 17,000 in the last four years.

—*Anna Tilman*

## Insurance Companies Liable

A Wisconsin judge has upheld a jury verdict that nine insurance companies are responsible for costs of cleaning up PCB pollution of the lower Fox River, Wisconsin, due to their contracts with paper company Appleton. Appleton and six other companies are responsible for dumping the chemical pollutant PCBs, or polychlorinated biphenyls, into the river as a byproduct of carbonless paper production.

—*Associated Press, January 17, 2009*

## US Carbon Scam

American pulp mills stand to rake in up to \$8 billion dollars from a government subsidy to encourage fuel shifting to non-fossil alternatives. The mills, which burn 100% waste "black liquor" from the pulping process in their chemical recovery boilers, are adding diesel fuel which entitles them to the big bucks. The Canadian government has been left muttering about matching subsidies, while the Environmental Paper Network is urging senators to close the blatant loophole.

—[www.environmentalpaper.org](http://www.environmentalpaper.org),  
*Vancouver Sun, May 15, 2009*



# Exploitation Without Conscience

## *Slavery and anti-slavery in the 19th century and today*

by Anne Sherrod

**I**n 1990 in British Columbia, the environmental movement played a large role in defeating the Socred government and electing a party that promised environmental reforms. This was achieved by a general uprising of the public that was led by virtually every environmental group in the province.

Environmental groups thus hold a large amount of power. They are transmitters in an electrical circuit that can sometimes greatly affect the reactions of the public. Because of that, they bear a grave responsibility in what they do with their endorsements. This is the crux of a moral crisis within the environmental movement today.

The world has reached a place where the consequences of environmental damage are more dire than ever (for instance, the extinction of a species, or high cancer rates around the tarsands development.) Nowhere is this more so than in the issue of climate change, in which all life on Earth is threatened.

Nowhere is humanity's slavery to exploitative economic forces more apparent than in its inability to undertake any substantial action to reverse climate change. Instead we have seen corporations combine with governments to use tanks, guns and bombs to consolidate their power over Mideast oil reserves, huge quantities of which have been used to wage the wars.

**In this spreading darkness, the feeling of enslavement** has caused some people to seek answers in the black people's epic struggle for freedom and equality. How did slavery end? More importantly, how could it have co-existed for 75 years with the principles that had led to the famous *Declaration of Independence*? In a nation such as that, why did it take one of the world's most bloody wars to end slavery?

Those who have studied this history have found remarkable corollaries to our situation today. For instance, Professor Marc Davidson of the University of Amsterdam used the US Congressional record to show that legislators were making the exact same excuses for failing to cut carbon emissions that their predecessors once made for refus-

ing to abolish slavery. (*Climate Change*, 27 April 2007). He equated slave labour to fossil fuels, which reflected why slaveholders wanted slaves: as an energy source for doing work.

Our modern slavery is directly descended from the enslavement of black people and can be traced throughout history. As laws clamped down on physical slavery, the old model of controlling people through brutality came to be replaced by one of deception and manipulation. The new Slave Power discovered that it was better to maintain a shell of democracy and allow people to vote, while controlling politics behind the scenes. Paying people wages (however poor and uncertain), and making them feel good (however superficially), enabled a far more long-lasting and lucrative form of exploitation than abusing people with chains and whips.

The slave system included laws against teaching slaves to read. If slaves could read, they might begin to get the idea that there wasn't much difference between themselves and white people. They might learn that freedom could be gained by travelling north.

Slaveholders of the 21st century cannot keep people from reading, but they have other ways of keeping them ignorant. They can deny, lie, cover up evidence, and cast doubt on what information does leak out, by hiring scientists to dispute the evidence.

Thus the tobacco industry covered up the links between cigarettes and cancer; the pesticide manufacturers did the same; the global warming deniers deliberately blocked the evidence from reaching the public; and governments rewrote the reports of their climate scientists. When one considers that the purpose of this was to deprive the public of the means of defending itself from serious illness and death, and how many deaths must have been or might yet result because of the delays in getting information to the public, one recognizes that exploitation without conscience is endemic in our society today.

**This being said, there is a pivot at which one** recognizes that democracy is still well enough that we have the freedom of speech, freedom of assembly and the vote. The big factor then becomes how we use those things to free ourselves. But just as scientists tell us that there is a tipping point of global warming, past which it cannot be

**Slaveholders of the 21st century cannot keep people from reading, but they have other ways of keeping them ignorant.**

reversed, so history shows that there is a tipping point to tyranny, past which it cannot be depowered except by paying tragic costs.

The US Civil War stands alongside the story of the rise of Hitler in demonstrating this tipping point. As environmentalists, we are almost all lovers of peace, if not outright pacifists. The ideals of cooperation between species and between people can tug at our heart strings. In fact, the whole human race loves the ideal of peace through compromise. We automatically equate compromise with fairness and morality, but we forget that even criminals compromise as they work together to harm others.

At the writing of the US Constitution some statesmen were adamantly against slavery, but the slaveholders refused to join the Union without it. The two sides compromised. Slavery was enshrined in the Constitution and given superior representation in Congress. The concerns about slavery were pacified with some limitations that turned out to be ineffectual. Seventy-three years later the new nation had four million slaves; one in every seven people in the US was a slave.

Slave labour meant a huge concentration of wealth and political power for slaveholders. What was then known as the Slave Power controlled the Presidency, the Senate, the courts, and was heavily represented in the bureaucracies and military. The more territory and legal rights it gained, the more it wanted, and the more it was able to get what it wanted.

Over the ensuing decades, every demand for expansion was opposed in the free states, with the conflicts resolved by political bargains that slowed down the expansion but did not stop it. Throughout that time, most Americans were perfectly comfortable telling themselves they lived in “The Land of the Free.”

Compromise with slaveholders was packaged as democratic principle, no matter that slaves were being whipped to death, tortured, and maimed; in many years there were instances of slaves being burned at the stake. But what white Americans were willing to ignore eventually gained the power to spread its dark shadow over their own rights.

For decades before the Civil War, the southern states were on the brink of achieving a majority in the House of Representatives as well as the Senate. Had that happened, the South could have simply legislated slavery into power over the whole country.

**The antislavery movement was never large enough** to defeat slavery. But people such as Frederick Douglas (an escaped slave), William Lloyd Garrison, and Charles

Sumner undertook what I believe is the most fundamental and important act of rebellion against any immoral, castrating, spirit-imprisoning force: to tell the truth for all to hear. And not just any truth, but one that is frank about the moral significance of the facts.

They denounced the Slave Power, the Government, the Constitution, and the Union itself, as well as arguing fiercely with each other on the moral issues of their methods of activism. They said that the nation, in its selective use of high principle, was a hypocrite, a fraud that had sold out its principles, and was better off being disbanded than being eaten by the rot it contained within itself.

For this they were beaten, murdered, besieged by mobs, vilified and targeted by oppressive legislation. If they were black, they faced certain torture or death if caught by slaveholders. But their words sparked a great moral uprising amongst hundreds of thousands of people, placing a wall of fire between the Slave Power and the total control it craved.

Many people today believe that the Civil War started when President Abraham Lincoln sent US troops to free the slaves. In reality, Lincoln only pledged to stop the expansion of slavery into new states. When he won the election, the southern states immediately began withdrawing from the Union before he even took office. They then commenced to seizing federal treasuries and military equipment, including numerous federal war ships, and finally bombarded a

federal fort protecting the US coastline, forcing its evacuation.

I have set down corroborating details of this story, with references to many authoritative history books, in an essay called “Courage, Cowardice and Compromise: The abolition of slavery in the 19th century and its relevance to the environmental movement.” It can be found at <http://community.netidea.com/wildernesswatch>.

The lessons of the Civil War were repeated exactly in the rise of Hitler and World War II: compromise with predatory interests is a dangerous diversion when potential victims should be seeking protection under the law. This same thing stands out in the takeover of our governments by corporate power.

Nearly 20 years ago the BC environmental movement, in its peak of unity and power, finally achieved a pro-environment government. We received what most of us wanted: open, transparent, public planning processes to reform forestry and double the park system. What ensued was compromise after compromise, during which the legal

**A devastating weapon was turned against the movement: the capacity for some activists to settle for less than others, shattering our unity.**

Continued on Page 26 ⇨


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⇌ *Slavery continued*

rights of the public, as well as environmental protection laws, were relentlessly eroded.

**Many in the movement came to accept bargains** with industry instead of demanding firm limits to corporate power. A formidable and devastating weapon was turned against the movement: the capacity for some activists to settle for less than others, thereby shattering our unity.

Meanwhile hundreds of restrictions on industry were being weakened or removed under de-regulation. Water rights – we never had any. The TILMA agreement between BC and Alberta allows business interests to sue or even fine governments that make laws which interfere with their profits. Legislation has tied the hands of communities to resist independent power plants. With ice shelves collapsing in the Arctic, countries of the world are still debating whether to cut carbon emissions by 50% in 30 years or 30% in 50 years.

This is not the way the black people won their freedom, which was only secured after the Civil Rights movement when laws of sufficient strength were put in place. Black people endured terrible things, but they won great victories.

I was putting the final touches on my writing about slavery, when I received news that the United States had elected its first black president. To black people, this was something like the summit of the Himalayas of their struggle. TV cameras showed that hundreds of thousands of Americans, probably well more than half of them white, had poured into the streets. Many of the people were near tears or had tears streaming down their cheeks. Those interviewed were filled with wonder and joy that they had personally made it happen by working for the campaign or casting their ballots.

Obama's acceptance speech will be preserved forever alongside the Emancipation Proclamation and Martin Luther King's "I have a dream" speech. But how much longer will 'forever' last in human history?

Global warming has handed humanity a dictum: there must be truly radical action. But the actions we have taken so far have been shaped by those who care more about the political climate than the planetary climate. Like the ice shelves at the poles, the conditions for life on the planet are collapsing under the destructive weight of the creed of endless economic growth. Now is the opportunity to demand real, not token changes. If we don't, the Earth as a place where the spirit may come to live out these epic moral conflicts and find a larger, wider, purer unity with each other and the world, may come to an end – and sooner rather than later than we thought.



Anne Sherrod is a director of the Valhalla Wilderness Watch.

## More From Our Readers

### Buses Mexico and Canada

I really enjoyed "To Mexico... By Bus" in the March/April issue! It was great to learn in Ms. Saxifrage's article about the superior bus service in Mexico. In Canada, as we all know, public transportation tends to be horrendously inconvenient and wildly expensive.

Last March (2008) I took a bus from Deep River, Ontario to Vancouver, after having heard how much air travel adds to our carbon "footprint." I'll probably take a bus out to BC again – although I'll wish bus travel in Canada was a bit more like it is in Mexico.

*Janet McNeill, Deep River ON.*

### Electromagnetic 'Smog'

I have a few points I would like to emphasize on the potential dangers of wifi.

Firstly, it is getting harder and harder to avoid electromagnetic 'smog.' In Ontario, our new electrical meters report usage stats by wireless. These meters are acclaimed because they allow the hydro company to bill by time of day, thereby attempting to change usage habits. Yet they

introduce another source of wireless right into our homes, which we cannot control or turn off.

In Manitoba, some government offices have removed land line phones, forcing people to use cell phones. Because of the construction of the buildings, these must be cells with fairly strong signals to get through all the concrete. Contract employees must provide their own cells and some have had to replace lower powered cells with new higher signal strength phones in order to be able to use them at their desks.

Even our cars now have keyless entry systems that use wireless transmitters to unlock or lock the car. Convenient yes, and very short exposure, but all of these small items add to electromagnetic smog.

Secondly, it should be noted that tissue burns from radio waves have been known about since the very early days of radio. These normally occur when a transmitter or re-transmitter (e.g. a transmitting antenna) is touched accidentally and a circuit is completed. Tissue burns generally occur at the point of contact. In a strong radio source, any ungrounded metal object becomes a re-transmitter. While wireless transmitters used for very short distances (e.g. for a wireless keyboard) are not strong sources and do not produce a field strong enough to create a re-transmitter or actual burns, surely the fact that strong sources can produce burns should warn us that these devices can have negative effects.

*Clara Broten, Ottawa ON*

### Activist's Toolkit

Thank you so much for the Activist's Toolkit series. If only we had had access to such words of wisdom and good advice, I know we would have made mountains' more progress when we were fighting for Comox Hill's old growth forest, now the site of "Emerald Estates."

*Hope Spencer, Comox BC*

### Advertising At the 'Shed

Just like our readership, the *Watershed Sentinel* team is growing. We are happy to welcome Pieter Vorster as our new Advertising Manager.

A newcomer to the Comox Valley, where the *Watershed Sentinel* is now produced, Pieter has worked as managing editor of a lifestyle magazine in Taiwan, and a creative writer for Saatchi & Saatchi advertising in South Africa, and has even done some professional acting.

Pieter can be reached at [ads@watershedsentinel.ca](mailto:ads@watershedsentinel.ca) or 1-250-792 2874.

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## The Crown of the Continent

by Sarah Katharine Cox

Fifty kilometres south of Fernie British Columbia, in the Flathead River Valley, is a mountain ridge that has no name. A fall photograph shows a sprinkling of snow on wavy peaks, slopes covered in Alpine Fir and yellow Larch, and a lush valley bottom below. What you can't see from the scenery shot is that this area boasts more carnivore species than anywhere else in North America, such as marten, grizzly, gray wolf, lynx and fisher. It also happens to be very rich in coal.

The price of coal has climbed in recent years, sending companies like Sudbury's Cline Mining Corporation scurrying to profit from promising markets in China and other parts of Asia. Somewhere between a uranium project in Madagascar and gold drilling in Wawa, Ontario, Cline geologists extracted core coal samples from this forested Rocky Mountain ridge and discovered a black bonanza.

Cline's proposed "Lodgepole" coal mine would extract up to 40 mil-

lion tonnes of coal from this ridge, razing the mountain and dumping slag and pollutants into Foisey Creek, a fish-bearing headwaters stream of the Flathead River. Six coal trucks per hour, seven days a week, will haul the coal along a steep gravel road and over a 7,000-foot ridge to a railway siding.

The number of mining claims in the Flathead has risen, since the BC Liberal government introduced online claim staking in 2005.

Coal has always been a dirty business, and "mountain top removal" coal mining is the darkest and bleakest of coal extraction methods. It is most notorious for the severely disfigured landscapes of the Appalachian Mountains in West Virginia and Kentucky. Another name for mountain top removal coal mining is strip mining, as layers of rock and subsoil are blasted away to expose lucrative coal seams. It could also be called strip mining because the landscape is stripped of all vegetation, wildlife and beauty, so

**Mountain top removal coal mining in the Flathead threatens international beauty and diversity. Water from this region flows to all three oceans**



that it looks as though it has been hit first by napalm and then smacked by a meteorite.

The Flathead, compared to Africa's Serengeti for its richness of plant species, is also targeted for coalbed methane drilling and precious metals and phosphate mining. Since the BC Liberal government introduced online claim staking in 2005, allowing free miners to acquire mineral rights with a quick click of the mouse, the number of mining claims in the Flathead has risen.

### Decades of Threats

For decades, conservation groups have fought off Flathead energy and mining threats one by one. Last December, following public pressure, the BC government excluded the Flathead from a controversial coalbed methane tenure it granted BP Canada, on the grounds that the Flathead is "environmentally sensitive." In the absence of permanent protection, however, the Flathead River Valley remains wide open to future coalbed methane drilling, not to mention any number of coal mines. A case in point is the Cabin Creek open pit coal mine planned two decades ago, not far from Cline's proposed Lodgepole site. The Cabin Creek mine was rejected in 1988 after

the International Joint Commission concluded that pollution caused by the mine would constitute a breach of treaty obligations between Canada and the US. Twenty years later, groups on both sides of the border are battling the eerily similar Cline mine proposal, one that would be just as much of an environmental blight.

There is a much better solution – permanent protection in the form of a Flathead National Park. Sierra Club BC and other conservation groups are campaigning for the lower one-third of the Flathead Valley to become a National Park, and for a Wildlife Management Area to be established in the rest of the valley. The federal government has included the Flathead in its National Parks Action Plan, and the local First Nation, the Ktunaxa, has written to the BC government in support of a national parks feasibility study. Approval from the BC government is needed before any protection measures can commence.

A topographic map shows the Flathead River Valley as a green ribbon of undisturbed wildlife habitat. The valley is a vital part of the Yellowstone to Yukon Conservation Initiative, which seeks to protect the wildlife, native plants, wilderness and natural processes of the mountainous region from Yellowstone National Park to the Yukon Territory. *Canadian Geographic* magazine describes the Flathead as a “nursery, incubating wildlife that disperses and repopulates neighbouring habitats.” Never settled, the low elevation valley supports a huge array of wildlife: 16 carnivore species and six ungulate (hooved) species in all. Wildlife flourish because animals have undisturbed access to both the valley bottom and mountain

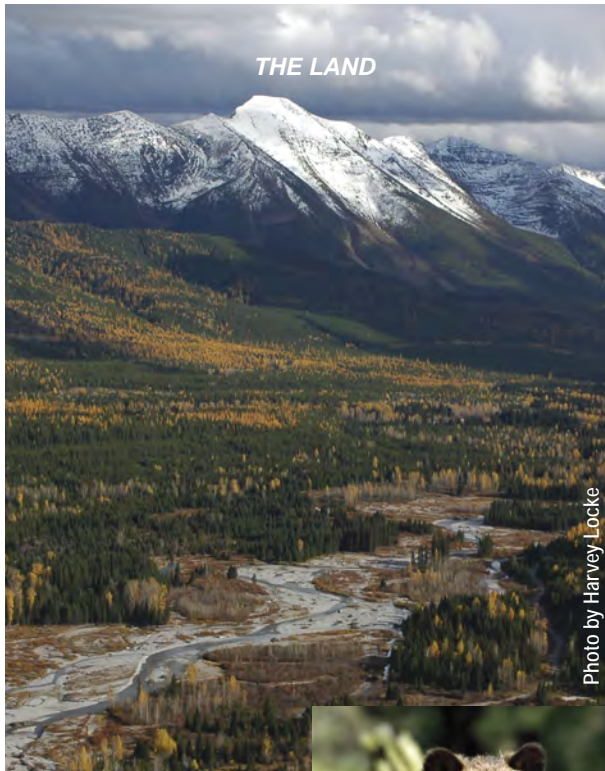


Photo by Harvey Locke

Only a few hundred years ago, grizzlies roamed from Mexico to Manitoba. Today, the southern tip of the grizzly bear's remaining habitat closes in on the Flathead River Valley.



tops. Grizzlies emerging from a long, lean winter can prey on deer or elk on the valley floor, and then migrate upwards as snow melts in search of hedsarum and glacier lily bulbs, fat grubs hiding under stones and, in summer, juicy buffalo berries and huckleberries.

Only a few hundred years ago, grizzlies roamed from Mexico to Manitoba. Today, the southern tip of the grizzly bear's remaining habitat closes in on the Flathead River Valley.

#### Pure Water

The meandering transboundary Flathead has water so pure that scientists like Dr. Rick Hauer, from the Flathead Lake Biological Station in Montana, use it as a benchmark for measuring water quality in rivers around the world. The Flathead flows south across the border and into Glacier National Park, one of the most

highly-protected areas in the entire United States, most famous these days for its melting namesakes.

If Cline's proposal is approved, overburden will be dumped into Foisey Creek, a headwaters stream of the Flathead just below the nameless ridge only 35 kilometres from the US border. The US Department of the Interior says heavy metals and other pollutants from the Cline Mine could reach the US portion of the Flathead River within 24 hours. Two species of fish, the bull trout and the westslope cutthroat trout, are at risk.

The ecosystem is known as the Crown of the Continent because water from this region flows to all three oceans surrounding North America. Alberta and Montana have each protected their part of the Crown of the Continent ecosystem as Waterton-Glacier International Peace Park, established in 1932. That park has been declared a UNESCO Biosphere Reserve and World Heritage site due to its priceless environmental values. It is time for the BC government to fill in the park's missing piece, by agreeing to permanent protection for the Flathead River Valley.



Sarah Katharine Cox works for Sierra Club BC. More information is available at [www.sierraclub.bc.ca](http://www.sierraclub.bc.ca).

Please write to Premier Campbell (Box 9041, Station Prov Govt, Victoria, BC, V8W 9E1) and let him know you want a National Park in the lower one-third of the Flathead River Valley and a Wildlife Management Area in the rest of the valley and adjoining habitat.

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# Enter the world of Bhutan

by Barb Brouwer

Imagine living in a world where decisions are based on environmental impact, good government, culture and socio-economic factors. A place where government dictates that at least 65 per cent of the country must be forested and where forest watchdogs make sure there is no illegal harvesting. A place where the 750 black-neck cranes remaining in the world are given priority in their wintering ground – a valley where solar panels and wood stoves provide heat and light because nobody knows how electricity would affect the birds.

Enter the world of Bhutan, where the country's Index of Happiness governs citizens who are gentle, friendly, compassionate and 90 per cent Buddhist, says Salmon Arm resident Joyce Henderson, who visited the country with husband John in November.

Henderson says she has long wanted to visit Bhutan because it's a country that has been insulated from the outside world and corporate control. This country didn't get TV or the internet until 1999. There are no Starbucks or McDonald's either, and tourism, which began only in 1990, is carefully controlled. Visitors, who must spend a minimum \$240 per day while in Bhutan, are brought in on one of twice-daily flights.

Visitors receive a white scarf, then a piece of coloured twine. Blessed by a lama, the twine is worn around the wrist to provide protection from evil spirits.

Tourists are introduced to Bhutan's traditional architecture right at the airport and, Henderson says, anyone who wishes to build in the country must do so according to the finely crafted, intricate tradition.

Describing Bhutan as a country like no other she has seen, Henderson says the importance of religious beliefs is in evidence everywhere. "At every mountain pass and every river crossing, there were all these prayer flags," she says, noting tourists hang a prayer flag inscribed with a Buddhist prayer and their names. "It is a prayer for the well-being of all sentient beings and the wind carries the prayers off down the river across the land."

In the squares in each town there are prayer wheels around which everyone walks in a clockwise fashion, saying their prayers.

Eighty per cent of Bhutan's citizens are subsistence farmers, avoiding an influx of impoverished people into the cities. People are self-sufficient, growing fruits and vegetables on their terraced plots – nearly all by hand.

This country didn't get TV or the internet until 1999. There are no Starbucks or McDonald's

Wild bees provide sweetener, leaving salt as the only necessary purchase.

"We didn't see any kids that were malnourished, they're so healthy looking," says Henderson. "All the kids assemble in the courtyard at school and sing to the lama or god of wisdom and then sing the national anthem."

Bhutan's rich culture is further preserved by the wearing of the national dress, something that is mandatory in all government offices.

The week before the couple arrived in Bhutan, a new king was crowned, an unusual event in that it was reported throughout the world. Also unusual to the North American mind, is the king's appearance in a huge stadium in the capital city of Thimphu. A massive crowd had gathered and the king shook hands with everyone and gave them a commemorative coin, Henderson says. "He was so affable,

there was no security, he kissed all the old ladies and touched all the babies."

While they celebrate and honour their own culture, the Bhutanese are very aware of their neighbours. "It is important

Bhutan keeps its identity and gets along with China, Tibet and India," says Henderson, noting the country is very vulnerable to its neighbours, a situation well-described by a Bhutanese tour guide. "If India coughs or China farts, they suffer the effects, so keeping culture alive is very important for them."

Pulling a label out of her photo album, Henderson describes it as another example of how intrinsic spirituality is to the culture. The label from a bottle of water manufactured by Himalayan Dew Co. advises consumers to "treat the product with respect because of its higher spiritual significance, being brought to Bhutan in the 8th century by Guru Rinpoche."

Henderson notes the values between Bhutan and Canada are at different ends of the spectrum. "If you make a decision based on the environment, culture and the happiness of the people, you'd come up with different decisions than if you're saying you're gonna make money."



Barb Brouwer is a journalist with the *Salmon Arm Observer*. The stories that most appeal to her are the ones that celebrate the human spirit or where she is able to provide a voice to people who are being treated unfairly.



## Wild Times



## Hope Never Dies

by Joe Foy

**I**n late April a friend and I drove up to the Lillooet Valley, north of Harrison Lake. This is the territory of the St'at'imc (pronounced Stat lee um) First Nation. On the way we camped for the night beside Lizzie Creek, a white water mountain stream whose valley and high alpine passes give access to the Stein Valley Heritage Park. My mood that night in camp see-sawed between the joy of once again being in a favourite wilderness area, and anger that Lizzie, like hundreds of other streams and rivers across the province had been staked by a private power company.

Concern over the proliferation of private power projects was what had brought us on this expedition. We wanted to see what damage had been wrought on Lillooet River tributaries like Douglas Creek, Fire Creek and Tipella Creek by the construction of river diversion projects on them. I had visited these sites last spring and observed dirty muddy water pouring into one of the streams from construction. In the Douglas Creek valley, a huge swath of forest had been cut down in a spotted owl conservation area to allow the massive river diversion pipe to be buried in the ground.

After leaving our camp on the banks of Lizzie Creek, we drove down the Lillooet River Valley road along the shore of Lillooet Lake then down the valley into In Shuck Ch First Nation territory. The In'Shuck'Ch are St'at'imc speaking people. Their territory is perhaps the most beautiful of any I have seen – at least in my eyes it is.

We headed up to another favourite area of mine, Glacier Lake, part of the Snowcap Creek drainage. Glacier Lake borders Garibaldi Provincial Park and except for some logged over areas from the 80s and 90s, is for the most part surrounded by old growth forest. It's a beauty of a watershed – and it's been staked by a private company to

be diverted into a big pipe to produce hydro power, just like Lizzie, Douglas, Fire and Tipella and hundreds of others.

After lunch on Glacier Lake, we headed down the Lillooet Valley, and at the base of Fire Mountain ran into a side road with an “active logging” sign at its entrance. My lunch now felt like a lump of lead in the pit of my stomach. Fire Mountain is home to some of the finest spotted owl recovery habitat left in southwest BC. The sign could only mean one thing. Environment Minister Barry Penner was up to his old “talk and log” tricks again.

Penner, the former parks ranger turned Environment Minister, lately had been talking a good game on endangered species protection. Environment Ministry officials had recently told us that the boundaries of spotted owl management areas were soon to be finalized and that areas of forest so designated would be off-limits to logging. When the Wilderness Committee first started working on this issue in the early 90s there were an estimated 100 spotted owls holding on to dear life in the forests of southwest BC. Today there are five remaining owls in the wild with another hand full cooped up in pens – part of the BC government's attempt at captive breeding. If this last ditch effort at captive breeding actually produces chicks, Fire Mountain is one of the places that they will live. It's faint hope – but at least it's some kind of hope.

And Fire Mountain is a designated spotted owl management area – so what was the deal with the active logging sign, we wondered. We headed up the road – right smack into the middle of a chainsaw massacre of some of the last prime spotted owl recovery habitat left in Canada. There were big Douglas firs laid low everywhere we looked. The sweet smell of clearcut hung in the air. Fresh sawdust sifted down from the stumps, pushed by the mountain breeze. The slash of destruction went on for



five kilometres up Fire Mountain. It was an active logging show, with more trees slated to come down further up slope.

It took us so long to document the destruction in photos and video clips on Fire Mountain, we never did get a chance to check out the river diversion projects up valley.

Heading home we made plans to set up yet another Wilderness Committee protest camp on the brink of destruction in the Lillooet Valley. I guess hope never dies until the last breath.



Joe Foy is Campaign Director for the Wilderness Committee, Canada's largest citizen-funded membership-based wilderness preservation organization, which has 28,000 members from coast to coast.

*Photos by Wilderness Committee*

# Young Salmon Migrate Along a Devastating Path

By Michelle Young

Outside my window overlooking the Strait of Georgia, the eagles are calling, floating on the wind, and a pair are tending to their newborn young in an eagle nest we are blessed to have in our yard. Every spring dozens of eagles come to this beach to feed on herring in the tide pools. But unless you have an eagle eye, you won't see some other precious spring migrants passing north through the Strait of Georgia.

Many juvenile salmon runs have made their way on the epic journey to the Pacific Ocean. Right now juvenile sockeye, including many from the Fraser River, are on their migratory path heading north through the Strait of Georgia. Until recently, we relied on local and traditional ecological knowledge, and a small number of tagged salmon, to know that Fraser River Sockeye follow this path out to sea. This year DNA analysis showed that the majority of sockeye sampled near fish farms in the Discovery Islands by Campbell River were from the Fraser River, with 30 different subpopulations represented.

A 2008 study found juvenile sockeye, and juvenile herring, with elevated levels of sea lice near fish farms. We already know that juvenile pink and chum salmon are impacted by sea lice from fish farms.

As the scientific weight of evidence that sea lice from fish farms are infecting wild salmon continues to mount, the open net-cage salmon farming industry continues to expand in BC. Farmed salmon production increased 27% between 2004 and 2007. Last year two farms were approved for increased production in the northern Georgia Strait. Five more existing farms have production increase applications in progress, in one case almost quadrupling licenced production. Three new large farm applications are in progress as well; two near Sayward in Sunderland Channel, and one by Texada Island. These massive expansions are planned to be right in the path of the out-migrating juvenile salmon.

Expanding an industry that has such devastating impacts on wild salmon does not make ecological or economical sense. Expansion is a step in the wrong direction, away from a transition to sustainable closed containment technology. For the sake of wild salmon, for the eagles soaring on the wind, the young eagles in their nest, a whole ecosystem that relies on wild salmon, and for the very heart of our culture in BC, this industry cannot be allowed to expand.

Michelle Young is a Salmon Aquaculture Campaigner with the marine conservation organization, Georgia Strait Alliance, [www.GeorgiaStrait.org](http://www.GeorgiaStrait.org)



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