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FEATURE
Growing Urban Food

Environmental News from BC and the World

Watershed Sentinel

Summer 2012
Newstand Price $4.95

Pipe Dreams

Geo-Engineering

Techno Fix or Climate Profiteering?

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NO ENBRIDGE

Make It Count!

The *Watershed Sentinel*, in co-operation with the BC Environmental Network and a private donor, has purchased a geiger counter. Now we can see for ourselves if the government line of "Don't Worry, Be Happy!" about Fukushima radiation is justified. We want to put the geiger counter on the road, sending it to communities around BC and Alberta to test for hotspots. No news will be good news, but we all need to know. Results will be mapped and posted on our website *sentinelhotspots.ca/hotspots/radiation*.

You will be able to borrow the geiger counter for up to two weeks, if:

1) you have someone with a technical background to operate the machine, download the results, and send them to us;
2) you are willing to pay courier costs to move the geiger counter (about $50), and
3) you will post a refundable deposit of $700.

There's a bit of work – user instructions, test runs, etc – to make it all happen and we will provide a training manual.

Donate to Geiger Counter Fund

Your donation will help with the initial training for a *Watershed Sentinel* volunteer to learn how to use and monitor the geiger counter, interpretation of the results and posting of data to the *Watershed Sentinel* 'HotSpots' webpage.

Please send your donations, payable to the *Watershed Sentinel*, to "Make It Count," c/o Box 1270, Comox BC V9M 7Z8 or go to *www.watershedsentinel.ca* and click on the **Make it Count** button.
Thank you. We guarantee we will make every penny count.

Fukushima Update

The latest bad news from the Fukushima nuclear site is that the wreck of the containment chamber for Reactor Number Two is much more radioactive than predicted. Actual measurements were taken in late March for only the second time since the tsunami/nuclear disaster.

The reactor chamber had much less water in it than the company expected, although the temperature was around 50°Celcius, low enough to indicate that the water would not boil off. Nonetheless, the company is running out of room to store the radioactive water used for cooling the four ruined reactors.

The radiation levels at Number Two are so high that they would mean death in a couple of minutes to an exposed human. Special equipment will have to be invented to do any "clean up" work at the site, because current equipment cannot function in those levels of radioactivity.

Number Two reactor is the only one which the company had been able to approach with equipment to get these measurements.

At the beginning of May, the last of Japan's 54 nuclear reactors was shut down, leading to fears of power shortages this summer. One third of Japan's electricity had been supplied by nuclear power before the tsunami. In Japan, reactors cannot be operated without the permission of local governments.

—The Guardian, March 28, 2012, guardian.co.uk, Canadian Business (AP) May 2, 2012.

Confused Reaction in Canada

A special report for the Canadian Nuclear Safety Commission says that the Canadian federal bureaucracy greeted the Fukushima disaster with confusion and a lack of certainty about which departments were responsible for what in relation to Canadians' health and radiation. In the absence of a coherent and coordinated federal response, the report says there was no "official federal government voice" to provide the public with information. The report did say that Canadian reactors were safer than those involved in the Japanese disaster.

—Vancouver Sun, April 26, 2012
www.vancouversun.com

Watershed Sentinel

Summer 2012
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Food

Energy

The Land

D. Broten

Climate Change

News & Other

Cover Graphic

by Andy Everson, Kwakwaka'wakw artist

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EDITORIAL

The Tough Get Going

It's often been tough going over the last 40 years for BC environmentalists – the odd house burned down, tree protectors faced with death threats and beatings. In the 90s, the SHARE movement raged through the land, protecting the logging corporations which have now sold out, leaving idled mills while shiploads of raw logs depart our harbours.

It's been even tougher for First Nations for much longer, as they slowly triumphed against a war of extinction.

Now, the going is getting really tough. The federal government has declared an intemperate and disrespectful war on any who oppose the pipelines to ship tar sands bitumen to the Pacific Ocean. That's us. Any of us who love this land and this coast. Not just greens, not only First Nations, but all of us in BC who dare to think about a future for this land.

It's going to be a bitter fight. It is unjust, it is unfair, it is racist, and it is wrong. The stakes are as big as the Pacific Coast and its entire chain of life, marine and animal, including human. The protective laws have been stripped away. Language not heard since the days of McCarthyism is hurled against us by Conservative politicians, some of whom are the worst kind of fundamentalists.

But if we stand together, in love of this land and its waters, if we join the Wall being created by the 150 First Nations and Band Councils now opposing the Enbridge pipeline, we will eventually prevail. The land will enclose us, and hold us in her loving hands, and we will all be changed forever.

No Pipelines, No Tankers.

Delores Broten, Comox BC, May 2012

At the 'Shed

Urban Food Solutions: Our special feature collection of urban food solutions in this issue was edited by circulation manager Susan MacVittie. We truly enjoy your feedback, so let us know what you think.

We Don't Say Thanks Enough: So here's a big thank you to the Magazine Association of BC. Over the years the association has provided resources, workshops, tutoring, and a sympathetic ear – the magazine you see is a result of that professional mentoring.

Website Updates: Over the summer we do not publish a print issue, but we will be hard at work on the website so that it can start to function as an immediate source of information for all the environmental issues brewing in BC. Check out *www.watershedsentinel.ca* to see what's up this summer.

Watershed Sentinel Educational Society
Annual General Meeting
Saturday June 16th, 1 to 3 PM, Comox BC
Phone our office at 250-339-6117 for more information

Have You Heard?

Compiled by Susan MacVittie and Delores Broten

CO_2 Capture Cancelled

TransAlta Corp. along with partners Enbridge Inc. and Capital Power Corp. have cancelled their $1.4-billion carbon capture and storage effort, which was aimed at reducing Alberta's carbon footprint. The companies will pay any penalties for emissions rather than cutting them. The project, which was tied to TransAlta's Keephills 3 coal-fired power plant, would have met about 20 per cent of Alberta's total carbon dioxide emissions reduction target by 2015.

—Globe & Mail, April 26, 2012

Beetle Dust Explosions

At least five explosions linked to wood dust have occurred at BC wood manufacturing plants since 2009. It is not known if WorkSafeBC investigated the smaller incidents. None of the earlier explosion*s* resulted in injuries, unlike the two fatal incidents that killed four workers at Lakeland Mills in Prince George and Babine Forest Products mill in Burns Lake, northern BC, this year.

The increased dust from dry, beetle-killed timber was cited as a production and safety concern by industry as far back as 2007. United Steelworkers local 1-424 president says the incidents should have sent a warning signal to safety regulators, industry leaders and the unions who advocate for worker safety.

—Vancouver Sun, April 28, 2012

Radioactive Waste in Texas

A 1,300-acre dump to bury low-level radioactive waste has opened in Texas, the fourth such US site. The dump sits above the Ogallala aquifer.

It will receive medical waste and other material from Texas. There is still no long-term US or Canadian repository for high-level nuclear waste, such as spent fuel rods from nuclear plants, which are stored in pools or dry concrete casks on-site. A Canadian burial site is proposed for somewhere in the Canadian Shield.

—Reuters, April 27, 2012

Howe Sound Gravel Pit

Burnco Rock Products Ltd. is proposing a huge gravel mining and crushing facility at McNab Creek in Howe Sound, BC. During the project's first phase, a 77-hectare industrial pit would be dug out of the McNab Creek estuary to depths of 55 metres, and more than 15 metres below the water table. Despite concerns voiced by the Department of Fisheries and Oceans, local governments, and local community groups, the Burnco project has recently begun a review by the Canadian Environmental Assessment Agency.

—Future of Howe Sound Society, April 26, 2012

CO_2 Rises

According to the Worldwatch Institute, energy use represents the largest source of global CO_2 emissions. A report highlights emissions increases in 2010 in both industrialized and developing economies. "Unfortunately for the future of climate, the global economy remains tightly coupled to fossil fuel combustion and carbon dioxide emissions," said Worldwatch President Robert Engelman.

—World Watch Institute, April 27, 2012

D. Broten

Speaker after speaker poured out their passionate pleas to an impassive panel at the Enbridge Northern Gateway Pipeline hearings in Comox, BC, March 30 & 31. Outside the hearing room on a chilly Saturday afternoon, over 2,200 islanders rallied, cheering, singing, and promising that their resistance and support of First Nations would be strong. They came from one end of Vancouver Island to the other, Port Hardy to Victoria, to be a part of the "Our Coast, Our Decision – No pipelines, No tankers" rally.

From Our Readers

Enbridge Hearings

In a recent CBC interview, our MP, John Duncan, was asked about his views on the Northern Gateway Pipeline Joint Review Process and the Conservative government's plans to shorten the process. He replied "4,300 people from all over the world signed up as intervenors. This has made somewhat of a mockery of the process. Many of those intervenors are legitimate but many of them are not."

I attended all but the last two hours of the hearings that were held in Comox on March 30 and 31. It is unfortunate that Mr. Duncan did not attend the hearings. If he had, he would have heard from British Columbians providing well-researched and passionate arguments for denying approval of this proposal.

Who are the illegitimate intervenors, Mr. Duncan?

Janet Fairbanks, Merville, BC

Smart Meters

As proponents of the Smart Meter program continue to recite BC Hydro's deceptive mis-information and half truths, a little research is all that is needed to dispel their supposed "facts" as nonsense. For decades, independent studies have shown unequivocally that electromagnetic fields (EMFs) damage DNA at levels well below the current standards, which are woefully inadequate in Canada. Independent environmental and EMF consultants have found that Smart Meters pulse more often and the peak pulses are greater in intensity than the "average pulse."

The Smart Meter deal was done behind the scenes, without public consultation and without review by the BC Utilities Commission. This issue involves personal health, privacy, data security, over-billing, fire safety, job loss and waste of taxpayers money. BC Liberals and BC Hydro have made a grave mistake.

Diana Gostling, North Vancouver, BC

Kropotkin Plus

Thank you for David Morris's wonderful article on Peter Kropotkin and anarchism. When I worked to make peace education compulsory in our schools, our flyer used his words: "Think about what kind of world you want to live and work in. What do you need to know to build that world? Demand that your teachers teach you that." Kropotkin's equivalent today is probably Gene Sharp of theAlbert Einstein Institute.

Delores asked for solutions. Working with teachers, parent-teacher associations and school boards to make peace education meaningful is one idea to start on.

Penny Sanger, Ottawa, Ontario

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:
Watershed Sentinel, Box 1270, Comox BC V9M 7Z8
editor@watershedsentinel.ca or online at
www.watershedsentinel.ca

Treeplanting Viability

Regarding your recent article on Not Sufficiently Restocked land in BC: I have never been able to find any reason to plant trees from an ecological perspective; it is a highly industrial activity that has a significant impact on the environment. Cutblocks will normally grow back to an ideal, healthy forest for that biogeogeoclimatic zone on their own with no intervention. Treeplanting gains 10 or so years on the crop rotation with industry selected stock and stand management, but is this really worth the massive economic cost? In other words, would forest companies do it if they weren't required to by law? Could it be that treeplanting is a dysfunctional, co-dependent relationship between 'ecological' legislation and industrial economics, neither of which make much sense at all?

Bruce Edson, Citizens' Environmental Advocacy Group, Prince George, BC

Project Questions

A private power project has "bottomed drained" high alpine Tyson Lake and dumped ice-scoured glacial silt into prime fish habitat. ALL government officials in environmental assessment, enforcement and protection have been obviously "gagged." Even the senior DFO biologist who assessed and approved the project, investigated from his desk in Nanaimo without bothering to visit the site until two months later.

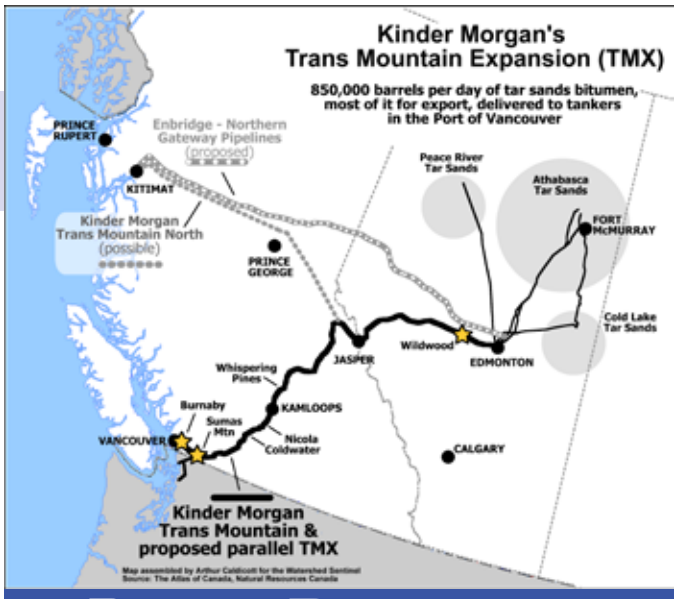
As well, not one government agency will respond to the question "Once water goes through a power turbine is it a by product of an industrial process and subject to export under NAFTA?"

R. Price, C.D., Narrows Inlet, BC

Water Wise

Solar hot water's great, but not if it encourages greater water consumption. For those who don't get dirty or sweat lots is it "smart" to shower and change clothes daily? And let's not sell excess solar power to BC Hydro so they can ship it south for US citizens to overconsume power and water – that's not "smart" either.

Susan Fletcher, Sechelt, BC



Pipe Dreams

"We will do whatever it takes to defend our lands and waters against this threat from Enbridge."
– Wet'suwet'en hereditary chief Alphonse Gagnon

by Susan MacVittie

Prime Minister Stephen Harper's government is determined to speed up and streamline the government-approval process for pipelines, recently cutting federal environmental-oversight agencies drastically from 40 to three, slashing budgets, limiting public participation and assigning fixed assessment timelines. It's all part of a slick plan.

Plan A: Keystone XL

No Longer on Hold

Despite President Obama's veto threat, a measure to move TransCanada Corp's Keystone XL pipeline forward was passed in the US House of Representatives in April. It has been suggested that newly-elected Alberta Premier, Alison Redford, will not resurrect the effort to raise royalties on oil and gas producers which the Conservatives attempted four years ago, after many industry reps gave support to the newly formed Wildrose Party, which won 34 per cent of the vote. Redford has stated that she'll keep pushing the US Administration to approve Keystone to move crude from the oil sands to the Gulf Coast.

Plan B: Enbridge

Northern Gateway

Beginning in Kitamaat Village, BC in January the Joint Review Panel has been hearing a resounding NO to the Enbridge Northern Gateway proposal from coastal communities across BC. Future hearings are listed on the Panel's website: *www.gateway-panel.review-examen.gc.ca*

Freedom Train

First Nations embarked on a Freedom Train from BC to Toronto and brought their message May 9 to the Enbridge stockholders' meeting that the Enbridge Northern Gateway project has been banned from their territories. The pipeline and marine transport route would cross through more than 50 First Nations communities, many of them unceded, with no treaty agreements. As Yinka Dene Alliance and Coastal First Nations note, the project will not be permitted to proceed.

Sarnia

The Aamjiwnaang First Nation will speak at a public hearing in May in London, Ontario about an Enbridge proposal to reverse Line 9, an Enbridge pipeline that delivers crude from Montreal to Sarnia. Enbridge says it's responding to market conditions and reverting back to the flow direction that was originally approved in 1975. The current westward flow has been in place since 1999. Environmental groups believe the reversal is part of a bigger plan to send western oil sands crude eastward for export to the US.

Plan C: Kinder Morgan

Trans Moutain

Vancouver's mayor Gregor Robertson vows to "fiercely oppose" Kinder Morgan's plans to increase capacity of its 60-year-old Trans Mountain pipeline from Alberta that ends in Burnaby. The Houston-based Kinder Morgan wants to nearly triple Trans-Mountain's capacity from 300,000 barrels a day to 850,000 barrels, higher than was generally expected. A large oil spill in 2007 into Burrard Inlet after a Trans Mountain pipeline rupture is still fresh in many Metro Vancouverites' minds.

Plan of the People

Meanwhile, people are organizing. The usual official environmental suspects are joined by community groups, Facebookers and bloggers, and First Nations, at protests, public hearings and artistic endeavours in an effort to raise awareness about pipelines that bring little long term economic benefits to the communities and a major threat to the environment should a leak or spill occur. In May the BC New Democrat Official Opposition caucus voiced their disapproval by registering its opposition to Enbridge's Northern Gateway Project with the National Energy Board's Joint Review Panel.

♦

Compiled from reports in the *Vancouver Sun, Sarnia Observer, Edmonton Journal,* and *Vancouver Observer.*

Kinder Morgan Pipeline Safety
Leaks and Explosions

by Joyce Nelson

BC Energy Minister Rich Coleman appears to be ignoring the fact that corporate ownership of the Trans Mountain Pipeline changed hands in 2005, when the Canadian owner, Terasen Inc., was bought for $3 billion by Houston-based energy giant Kinder Morgan. Regarding the pipeline, Coleman told the *Burnaby NewsLeader* (April 12), "This one's been in operation for a long time, and it does show that pipelines can operate safely for generations."

In April, Kinder Morgan announced $5 billion plans to greatly expand the Trans Mountain Pipeline, which brings tar sands crude to Burrard Inlet, by increasing its capacity to 850,000 barrels per day.

NDP opposition energy critic John Horgan told the same news outlet that, while he's opposed to Enbridge's Northern Gateway Pipeline, "Kinder Morgan is a more complicated question, and one that has a track record of 50 years of more or less unblemished activity."

But in the US, Kinder Morgan's record is anything but "unblemished." According to Eric de Place, senior researcher at the Sightline Institute, a Seattle-based think-tank, Kinder Morgan (KM) pipelines "are plagued by leaks and explosions."

As a company, Kinder Morgan has been in existence only since 1997, when it was founded by billionaire Richard Kinder, the former "enforcer" for Ken Lay's Enron, and another former Enron executive, William Morgan. Since its founding, KM has been on a buying binge. According to the *New York Times* (Oct. 17, 2011), KM has made "about 90 acquisitions" of smaller rivals in its short history. A change of ownership can make a huge difference in pipeline safety.

Between 2003-2005, KM had so many significant pipeline incidents on the US West Coast, that, according to the *Tyee* (Aug. 3, 2007), the US Dept of Transportation's Pipeline & Hazardous Material Safety Administration ordered the company to "comprehensively address integrity threats along the entire 3,900-mile Pacific Operations unit." By mid-decade, the company's pipeline safety record led Carl Weimer, of the Bellingham, Washington-based Pipeline Safety Trust, to label KM "the poster child for pipeline problems." Critics charged that KM had been expanding its business so rapidly that issues like pipeline safety had lower priority than profits.

In an April 2012 report, *The Facts About Kinder Morgan,* Sightline's Eric de Place found numerous incidents involving KM's 43,000 miles of oil and gas pipelines in North America have resulted in "deaths, felonies, and environmental disasters," including the 2007 incident in Burnaby where 1,500 barrels of oil spewed onto homes and flowed down streets into Burrard Inlet after an excavator struck a poorly-mapped KM pipeline.

Now KM is in the process of buying El Paso Corp. for $21 billion, by which KM will become, says the *New York Times* (April 15, 2012), the US's "biggest empire of oil and gas pipelines," with 80,000 miles of pipe across the continent, transporting more than one million barrels of fuel per day. Goldman Sachs, which has two seats on the KM board of directors, owns a 19.1 per cent stake in KM, whose other investors include the Carlyle Group.

Whether Kinder Morgan can safely manage the doubling of its pipelines across the continent is something that many are questioning. And whether KM can safely transport 850,000 barrels per day of mostly tar sands dilbit through an expanded Trans Mountain Pipeline is a crucial question for BC.

KM has already had two significant pipeline incidents in Canada in the last year. In April 2011, an undisclosed amount of crude oil leaked from KM's Trans Mountain pipeline into a creek near Wildwood, Alberta, 150 km. west of Edmonton. The leak was discovered by a husband and wife riding horses on their property. On January 24, 2012, a storage tank at KM's Sumas Mountain facility in Abbotsford, BC leaked 110,000 litres of crude oil, causing local concerns about health, environmental safety and property values.

Recently, three First Nations issued a joint statement saying they will not deal with Kinder Morgan. In mid-April, Whispering Pines, Coldwater, and Lower Nicola Indian bands said the company does not have a permit to operate the pipeline on their reserves, has not dealt adequately with past pipeline leaks on their land, and intends to take too much land for the expansion of the right of way and a 65-metre safety zone in addition.

In 2008, Kinder Morgan completed a controversial expansion of the Trans Mountain Pipeline through Jasper National Park and Mount Robson Provincial Park. The expansion had been pre-approved in the 1950s for the previous owner of the pipeline, and was "grandfathered" for KM by the Harper government.

"They want to go through our territory and our reserves without rectifying existing wrongs," Chief Michael Le Bourdais of Whispering Pines told the *Kamloops Daily News* (April 17). "They want to consult about the future and ignore the past without considering the impact that a pipeline that size will have on our lives." The pipeline traverses 15 reserves in BC, as well as dozens of towns along its current route.

A phalanx of mayors is also vowing to fight the project, including Burnaby Mayor Derek Corrigan and Vancouver Mayor Gregor Robertson, who is calling on Ottawa to bring local governments to the table on the issue.

In an op-ed for the *Vancouver Sun* (April 23), Robertson wrote: "… Kinder Morgan is proposing massive crude oil exports that bypass local refineries, magnify the risk to our economy and environment, and ignore Canada's long-term domestic oil needs. This is all happening against the backdrop of an abrupt weakening of the federal environmental review process. Which means Kinder Morgan's proposal will face far less scrutiny, and our communities will have much less time to give it the hard looking-over it deserves."

On April 13, Gloria Galloway of the *Globe & Mail* revealed that the cuts to Environment Canada mean that "the unit at Environment Canada that responds to oil-spill emergencies will be dramatically scaled back and most of its regional offices will be closed." The staff in the Environmental Emergencies Program co-ordinate the clean-up of spills that occur within federal jurisdictions including waterways and First Nations reserves. The regional offices in Vancouver, Edmonton, Toronto, Montreal, Dartmouth, NS and St. John's, Newfoundland, will be "consolidated into two locations – Gatineau, Que. and Montreal."

♦

Image by Andy Everson, Kwakwaka'wakw Artist

Watershed Sentinel HOTSPOTS

Raven Coal Mine Update: Quiet is Not Dead

The Raven Underground Coal Project, proposed for Fanny Bay on Vancouver Island, is not dead, but it has been very quiet for many months. Even though it seems the environmental assessment (EA) process started two years ago, it has not yet formally started and is still in the "pre-assessment" stage.

Compliance Coal and the BC and federal environmental assessment agencies are working together to finalize the Application Information Requirements and Environmental Impact Statement (AIR/EIS) document. This is a detailed list of issues the company must address when it formally applies for an environmental assessment.

The AIR/EIS was expected in early 2012, and we ticked off the winter months, and then spring.

When the AIR/EIS is finalized, Compliance Coal Corp. will go away and write its application, a multi-volume document of hundreds of pages. Then:

- The Application/EIS is given back to the assessment agencies, where it is reviewed and may be accepted, or may be sent back to Compliance for revision.

- Once the Application is accepted, a 180-day clock starts ticking, at the end of which, the BC Environmental Assessment Office must terminate the EA, and send a report and recommendation to the Minister of Environment and Minister of Energy and Mines

- Shortly after the Application is accepted and posted on the public registries, a public comment period of 50 days will be announced. This public consultation will include another round of open houses. It will likely be the last opportunity the public has to engage with and provide input to the environmental assessment process.

When might the Application be complete and accepted? We can only speculate.

Compliance has likely already written most of the Application. The finalized AIR/EIS may simply require them to dot some eyes and cross some tees, in which case Compliance could file the Application within a very few months – perhaps even weeks – of the finalized AIR. Or the finalized AIR/EIS might require Compliance to do one or more lengthy baseline studies, in which case many months or even a year could go by before they have the information necessary to finish the Application.

—Arthur Caldicott

Self-Sufficiency

A Look at Vancouver`s Urban Farms

Amidst the concrete and skyscrapers of the city sprouts a determined group of folk who are turning backyards, balconies and vacant lots into a green oasis of food. Growing food in the city is not a novel idea, but with concerns about food security, food systems and people wanting to connect with the land – urban agriculture is a "growing" movement. Our Solutions – Urban Food section highlights some of the urban agriculture initiatives and ideas that are playing a role in re-greening the urban landscape. This series of articles includes Vancouver's Urban Farming Census, Sharing Backyards mapping project, youth guerilla gardening, community trust farming, myths about backyard chickens, how to turn lawn into garden and container gardening.

by Marc Shutzbank

As winter melts into spring, and mushroom hunters spot their first morels, the growing season begins anew. Yet, it's not just large farms in Burnaby and Delta starting their crops. New farmers across the City of Vancouver, the North Shore and urban areas of Richmond are transforming their urban food environment one backyard, public plot, or privately owned parcel at a time. Though there are many instances of urban agriculture and peri-urban farms across North America, urban farmers are a relatively small group that primarily grow food for sale on plots less than an acre in size. In 2010, nine of these urban farms grew and sold their produce in Vancouver and its surrounding communities. In 2011, those numbers grew, with two new farms growing in the City of Vancouver and one new farm in the City of North Vancouver and Richmond.

In 2010, eight urban farmers participated in an Urban Farming Census I administered through the University of British Columbia and the Urban Farming Network. In that year, 117 families were provided weekly boxes of produce through community shared agriculture (CSA) programs. Including farmer's markets, restaurants and retail sales, urban farms sold $128,000 of produce from just 2.34 acres of inner city farms. In the first year of business, urban farms did not return large profits, but they provided 21 jobs through farm sales and grants at $10.40/hr to $25/hr for hourly employees.

So far ten urban farms have participated in the 2011 census. Those organizations shared produce with 139 CSA members weekly. On just under four acres, urban farmers sold $180,000 worth of produce through CSAs, farmer's markets, on farm sales, restaurants and retailers. These budding businesses, most of which are in their first three years, hired 29 employees at similar hourly wages to 2010. Sean Dory of Sole Food, an urban farm employing downtown East Side residents, is preparing to make fourteen new hires for the 2012 growing season. "We have people that beg us for our arugula and we need the people to grow and harvest for our customers," says Dory. "Our goal is to grow fantastic food. It just so happens that in doing so we provide opportunities for employment in the downtown east side. We're helping those in this community invest in themselves."

While urban farming is popular in many circles across North America, many criticize urban farm development because urban farms cannot support the total urban demand for food. Dr. Wendy Mendes, a Social Planner with the city of Vancouver, counters, "Even producing ten or twenty per cent of our food makes a difference. Urban farmers can produce a portion of our food, all while building

Photo by Marc Schutzbank

multifunctional garden space that can provide a place for the public to connect with the food system."

Finding new ways to grow even a portion of our own food is critical in an environment where food prices are at the highest level ever recorded. High oil prices, combined with increased biofuel demand and a changing climate, put strain on our food systems. In British Columbia, 90,193 individuals used food banks in 2011. Not only are people not getting enough food, they are not getting the right kinds of food. Just over 50 per cent of Canadian adults are overweight or obese, as are 26 per cent of our children.

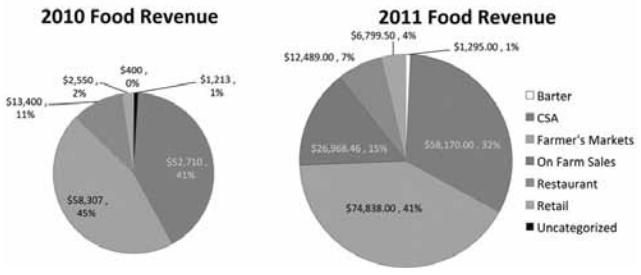
One of Vancouver's urban farms, Farmers on 57th, works with United Way through Growing Eden, a program designed to provide healthy produce for families. "We all sit down and enjoy a big lunch together. Then we prepare the harvest for families to take home. It's so fun to watch the children explore the peas and beans," explains Jen Rashleigh, project coordinator for Farmers on 57th. "In addition to providing food through the season, we're helping to teach these little three year olds to think differently about where food comes from. It doesn't just pop out of the grocery store."

People are often passive consumers in our commercial food systems, buying only what is available at retail stores. There are few instances where consumers can act as active food citizens, working with producers to provide healthy food for their families.

An average North American chooses to spend just 67 minutes a day on food: preparing, shopping, cooking, eating, and cleaning. That's just 22 minutes a meal. What kind of food can you prepare, shop for, cook, eat, and clean up after in 22 minutes? Wendell Berry puts it best, "Our model citizen is a sophisticate who before puberty knows how to produce a baby, but by the age of 30 does not know how to produce a potato." We are disconnected from the food that we eat and the processes and people who produce it.

Urban farmers and their allies are facilitating new connections with the food system on a whole new level. Ilana Labow of Fresh Roots Urban Farm Society builds working urban farms on schoolyards, providing outdoor learning classrooms for teachers to teach BC curriculum. "It's amazing to watch children arm wrestle for the last of our purple sprouting broccoli," Miss Labow says. "Our vegetables are in demand from the students, first, and then the parents. We are helping create new opportunities for school communities to participate in the growing and eating of fresh produce."

As these urban farmers invest their time, labour, and money into their land, they do so knowing it is not explicitly legal. Though municipalities around the world have continually embraced urban agriculture, many cities in North America moved agriculture to a rural agenda over 100 years ago. There are no zoning or licencing allowances for entrepreneurial urban farming in Vancouver, but a fruitful relationship between urban farmers and the government is helping to change that by re-thinking how to include food in a municipal agenda.



Farm gate sales allow farmers to stay onsite and sell to cusatomers, decreasing time spent off the farm and minimizing logistical difficulties. Restaurant sales are increasing and many urban farmers are interested in developing relationships with chefs and other wholesale markets.

"As an organization, the city is still learning about these businesses and the differences between community gardens and urban farms," says Dr. Mendes. "We're reintegrating our food systems into our urban environment. It's important to recognize that this is not new around the world and we have a lot to learn from other cities, particularly in the Global South." Armed with a mandate from the Greenest City Action Plan, and city council's call for a just and sustainable food system, the City of Vancouver and urban farmers are rebuilding a framework for urban farming.

The wheels of the city have been turning quickly in the past four months. Already a technical team has been assembled. City officials are meeting farmers to determine how to move forward. The city, in consultation with stakeholders such as the Urban Farming Network Society and others, is learning about the different types of urban agriculture, the needs of these organizations and residents. "Ultimately, we have the kind of society that we demand," says Julia Smith of Urban Digs Farm. "We need more of our neighbours to point out how important urban farming is to them and help the city develop these policies."

Urban farmers are ready to plant their seeds and provide healthy, organically grown local produce for families in the Metro Vancouver region. "We're building sustainable businesses," says Chris Thoreau of the Urban Farming Network Society and owner of My Urban Farm, a sprouts business. "It's about building socially, environmentally and economically sustainable organizations. We're in this for the long haul."

♦

Marc Schutzbank is a MSc. candidate at the University of British Columbia, Faculty of Land and Food Systems, and a founding board member of Fresh Roots Urban Farm Society. For more information on The Urban Farming Census, email: *mhs12@interchange.ubc.ca*.

Getting Off the Grass

by David Tracey

Keep the Grass Off

For a large area of lawn to be replaced you can rent a sod cutter. It will do a clean job of stripping grass off at the root, leaving the bare soil behind to be planted into. A smaller space can be handled with a spade and some grunt work if you cut into and lift the grass a piece at a time, shaking off the clinging soil before you toss the scalp into the compost.

But you can avoid stripping and digging altogether with the easy sheet mulch method.

Five Steps to Sheet Mulching

1. Mow the grassy area to be converted as low as possible.

2. If it doesn't drain well, poke a spading fork under the grass into the soil to open up passages.

3. Dig out any weeds such as morning glory that could survive the following cover-up process.

4. Cover the area with overlapping pieces of cardboard or 6-8 layers of newspaper, then wet thoroughly.

5. Cover the cardboard with alternating layers of nitrogen and carbon for compost. For example, an inch or two of manure, topped by dried leaves, topped by kitchen scraps, topped by straw, then repeated until you reach your desired height. Higher is better, and three feet would be good-sized pile to start (it will shrink). If you add to the pile as it breaks down, remember to top it each time with a dry carbon layer to discourage flies from feeding and laying eggs. You can also cover the pile with black plastic which will help warm the contents and encourage decomposition, but straw or burlap sacks will look nicer.

In about six months, depending on the weather and what you've added, the materials should have broken down enough to no longer be recognizable, which means you can plant in it. Or, if you want to grow sooner than that, simply add a foot or two of soil on top of the cardboard/newspapers and plant right away. The layers of paper and grass beneath will eventually break down.

♦

David Tracey is a writer and environmental designer living in Vancouver. Excerpted from *Urban Agriculture: Ideas and Designs for the New Food Revolution* (New Society Publishers), 2011. ISBN: 978086571694.

Chicks in the City

Interest in raising backyard chickens in cities across Canada is growing and officials are scrambling to address by-law concerns.

Many owners keep four-to-six hens, who often become more like pets than livestock, and enjoy the fresh taste of hand-picked eggs and controlling their food source. Cities such as Guelph, Ontario and Victoria and Vancouver, BC allow backyard chickens and more cities are being urged to adopt similar guidelines.

There is little evidence that urban coops cause problems, yet the right to have chickens had one chicken owner pursuing the issue in Alberta Provincial Court in March. The Canadian Right to Food Trial originated with a bylaw infraction by Paul Hughes, president of the Calgary Liberated Urban Chicken Klub (CLUCK), for the possession of urban chickens in Calgary. It has since morphed into a complex legal argument involving issues such as the jurisdiction of a municipality to determine what we consume and the Right to Food as guaranteed and protected by the UN.

Time will tell if Calgary's chickens will come home to roost.

Chicken Factsheet

Myth: Chickens are noisy.
Fact: The main rule for keeping urban chickens is *no roosters allowed.*

Myth: Chickens are messy and smelly.
Fact: Chickens don't smell, but clean-up of their feces, like any animal, is essential. Chicken manure is a sought after fertilizer.

Myth: Chickens attracts rodents.
Fact: Rodents are attracted to any unprotected food source; there are preventative measures such as chicken feed containers and coop designs.

Myth: Backyard chickens decrease property value.
Fact: There is no evidence that keeping hens within city ordinance guidelines affects property values.

Myth: Chicken coops are eyesores.
Fact: City coops are typically small, clean and attractive because people love their pets and live in close proximately to them.

—SM

Photo by Arlette

Biggest Little Garden in Town

by Diane Cairns

Suggested Planting for Apartment Gardens

Top - plant either beans or peas in the top box utilizing the trellis for support (may need string to keep plants upright).

Middle - chives, parsley, swiss chard and carrots can be planted in the middle box.

Bottom - spinach, lettuce, radish and scallions can be planted in the bottom box.

Try not to over crowd your garden by planting too many types of vegetables or too many seeds. Each seedling will need room to mature.

I am Director of the Living Well Department at Fraserside Community Services Society in New Westminster, BC. The Living Well Department assists low income people to live healthy, active lives. A few years ago, many of my clients who were dependent on food banks, were concerned that they were not able to get enough fresh produce. Fraserside believes in "helping people help themselves," so instead of trying to get more fresh produce donated to the food bank, we thought we would teach these people how to grow their own food.

There were a few hurdles to overcome! Barriers such as transportation, mobility and the fact that many of those people had no access to land were just a few. In response to these challenges, Fraserside developed a program called the "Biggest Little Garden in Town."

The "Biggest Little Garden in Town" (BLGT) is a container garden project. Anyone living in an apartment or home with limited access to land in New Westminster is able to become a BLGT member. All BLGT members are supplied with a three-tiered cedar garden with a lattice, soil, fertilizer, plants, seeds, tools, guide book and have access to free workshops.

The container garden is designed to be easily transported. It is small enough to fit through a door way, up a staircase, on a balcony, but large enough to produce a reasonable amount of fresh produce. The boxes are deep enough to grow root vegetables such as carrots and radishes. The lattice makes the top box perfect for peas and bush beans. The middle box produces lettuce, parsley, spinach, chives and much more. The boxes are made out of cedar which has a natural preservative to prevent rotting, so no chemicals are leeched into the plants.

The plan was to pilot eight-to-ten gardens the first year. But the program was an immediate success and there were 54 gardens on balconies throughout New Westminster before the first season was over! Now five years later, we have over 300 gardens, with a waitlist and other communities wanting to host the program.

As the program grew and the membership increased, the first thing we quickly came to realize was that providing members with gardens was not necessarily going to increase food production! The enthusiasm to succeed was definitely alive and well, but many of these urban dwellers did not know very much about growing food. Many members did not know that you eat the bottom of a carrot plant, the top of a lettuce plant, nor that the little flowers will turn into tomatoes.

The second thing that soon became apparent was that at the workshops, the senior members of our program were more than happy to share their experience and knowledge with people who were new to the gardening scene.

It was very eye opening to see how much basic knowledge was missing and we quickly realized it needed to be captured and shared. This prompted the creation of our "Little Guide to Container Gardening." This book and the workshops have become as integral to the success of the program as the gardens themselves. The knowledge of gardening and the awareness of how food is grown are crucial to the future of food security. I am thankful that I have been given the opportunity to provide a means to allow senior gardeners to share their knowledge and tricks of the trade with those who have never lived "on land." I believe that people need to be allowed to experience the joy of growing food; even those, or especially those who live on the 20th floor of an apartment building!

♦


Photo by Chris Hawkins

Sharing Backyards

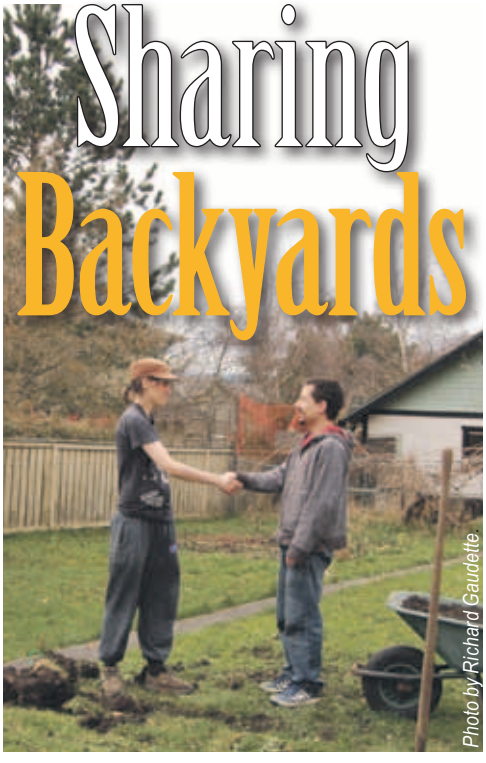


Photo by Richard Gaudette


Photo by Chris Hawkins

BC backyard mapping project connects urban gardeners across North America

by Christopher Hawkins

It's the fourth week of spring, and Leeann is thinking about this year's garden. In the past few years she's put in good effort, but she hasn't had much luck: a few tomatoes, a few peppers and a handful of green beans. Leeann knows it's possible to grow a good crop, but she hasn't been able to do it on her own yet, so she's asking for help. She's posted a listing on www.sharingbackyards.com, a website that helps aspiring gardeners to find land and connects those like Leeann, who have land but need some help, with those who are looking for a plot.

Leeann is positive about finding a match, and with good reason. In 2009, Sharing Backyards helped create over 300 gardens in North America. In 2011, they helped create over 700 new gardens in 36 cities.

History

Sharing Backyards was created out of a need for more urban gardens. In 2005, those on the waiting list for a community garden plot in the Victoria, BC James Bay neighbourhood would wait over two years. People began posting paper lists to community garden bulletin boards in an attempt to find places to grow. Linda Geggie of the Lifecycles Project Society created the Sharing Backyards project as a way of helping people get the space they needed. The project expanded from the paper lists to a very basic list-based website. The project was then joined by Patrick Hayes, a Drupal website developer and geo-mapping consultant. At an estimated value of $15,000, he volunteered his time to design a custom web-based module to give Sharing Backyards an innovative, interactive "skin" over Google Maps. This allows people to see where yards were available in their neighbourhood, helping gardeners find plots that would be close to home; thus saving fuel and ensuring that each garden gets the care it needs.

Organizational structure

Sharing Backyards is one of many great projects of Victoria, BC's Lifecycles Project Society (*www.lifecyclesproject.ca)*. Lifecycles is a registered non-profit society, and operates a number of community projects around food security. Of its projects, Sharing Backyards has expanded beyond the local area of Victoria to become North America's largest and fastest growing yard sharing network.

The Sharing Backyards Project is run by a small "core" team of volunteers who look after the administrative duties. The core team maintains and updates the website and its technology, plans the direction of the project, sets up new yard sharing programs wherever there are interested groups, and offers mentorship and support to the existing programs within Sharing Backyards' network.

Although there are already maps created for every city in the world, a yard sharing program is considered active when a "Local Partner" has been arranged. Local Partners form the backbone of Sharing Backyards' system. A Local Partner is responsible for promoting the Sharing Backyards program in their local area, answering

emails from program users, and helping find sponsors to fund the program. In return, they are given control of the map for their area, mentorship on how to launch and run a yard sharing program, and ongoing technical support. An eligible local partner could be a dedicated individual, a non-profit organization, a community group, a city council, or even a business.

How does *www.sharingbackyards.com* work? Sharing Backyards utilizes a unique online mapping system that allows people to post their own listing, free of charge, denoting whether they're looking for a garden, or are sharing their land.

Let's say Bob wants to grow a garden but he doesn't have enough space on the balcony of his apartment to grow more than a pot of chives – and besides, his view faces north, away from the prevailing sun. So, he turns on his laptop, and navigates to *www.sharingbackyards.com*. Once there, he selects his country from a list, then his city. This brings him to an interactive map of his area. First he browses the map, to see if anyone in his neighbourhood has space to offer – but where he lives is primarily composed of apartments. So Bob looks a bit further, and finds someone a few blocks away who is offering their yard to share. It appears that they have plenty of space, and even a few fruit trees, but they just don't have time to get into the soil. He sends them a message through Sharing Backyards' messaging service, which protects his information, and, for good measure, he places his own posting on the site indicating that he's looking for garden space. Altogether, this has taken him about six minutes, and all that's left is to wait for a response.

Project success

From its humble beginnings in 2005, Sharing Backyards has grown to include programs in more than 46 regions by 2012, some regions encompassing more than 10 communities. In 2011, more than 700 new gardens in North America owed their creation and cultivation to connections made through Sharing Backyards. At the time of this printing, Sharing Backyards had programs in 46 cities, including Victoria, Vancouver, Kelowna, Winnipeg, Toronto, Philadelphia, Portland, Washington DC, and Auckland NZ, as well as many smaller communities in between. The project has received press attention from the *Washington Post, This Old House, Organic Gardener, CBC Radio,* the *Toronto Star, and* the *Globe and Mail,* to name a few.

Sharing Backyards utilizes a unique online mapping system that allows people to post their own listing, free of charge, denoting whether they're looking for a garden, or are sharing their land.

A Sharing Backyards site user in Victoria, BC, Nancy, shared with us her experience of sharing her garden in 2011:

> "I had a great season last year with the help of the Sharing Backyards program and Dawson, my yard sharing match, was terrific. We dug up an area down the backyard to expand the garden and at the back fence where an old shed had been removed by the landlord. The garden was double dug, by Dawson, putting in compost I had and some he had made. We grew leeks, zuccini, beets, chard, tomatoes, spinach, lettuce, peas, beans and herbs. My neighbour gave me leaves from her tree to spread on the beds this fall and I made a big compost at fall clean-up, so I am looking forward to an even more productive year with the hard work of digging done. I hope Dawson can take time from his studies to return this spring."

Benefits of yard sharing

On a community level, yard sharing boosts the local food supply, thus increasing community resiliency and sustainability. Urban back and front yards become productive agricultural land, lessening the need to import foods from far away. For those who are no longer physically able, yard sharing offers a way to contribute and share in the harvest without all of the lifting and bending. Yard sharing builds community by bringing people together for the common purpose of sharing and growing food. All things considered, a yard sharing program is a valuable addition to any community's Food Security plan.

If you'd like to find a place to garden, would like to share your land, or want to start a yard sharing program in your area, visit *www.sharingbackyards.com*. To make a donation to the project, please email info@sharingbackyards.com

♦

Christopher Hawkins has been the Project Leader for Sharing Backyards since 2008. He runs a website design and business consulting firm, *www.authenticbusinesssolutions.com,* and resides in Sooke, BC.

Integrating Agriculture and Urban Culture

Exploring the proposal of Community Trust Farming

Emaya with worm

Photos by Paula Rodriguez de la Vega

by Arthur Fallick and Kent Mullinix, Kwantlen Polytechnic University, Institute for Sustainable Horticulture

Although food is one of the essential elements of life and the basis around which human settlements were traditionally structured, planning for food and designing place-based food systems has not been a priority in North America. Recently, however, awareness of impending peak oil and climate change impacts on our food systems, as well as concern about food safety and self-reliance has given impetus to local food movements.

According to the BC Agriculture Council, farming in the province is a roughly $2.5 billion per year industry that in 2010 incurred losses of $87 million. This is happening in part because planning for agriculture in BC is fragmented and favours an industrial, commodity-focused model that relies heavily on consolidated, global systems of production, processing, distribution and sales. This is promoted and supported at the expense of building and maintaining local and regional food systems.

Planning for Food Self-Reliance

The Ministry of Agriculture acknowledges that BC is challenged in maintaining food self-reliance and there is widespread belief that planning for agriculture is not integrated within and between the various levels of government in the province. This presents a significant food security concern. BC needs a stronger and more substantive commitment to strengthening local and regional food systems. The focus must move beyond planning to alleviate the pressures of urban sprawl and include more sophisticated strategies than merely sacrificing non-renewable agricultural land for short-sighted responses to transportation, housing, employment, or industrial demands.

In October 2006, the owner of the Southlands property, Sean Hodgins, outlined a broad land use vision to the local community that sought the integration of food and agriculture as an element of community design in an effort to reverse the trend of food being produced at ever more industrial scales, ever further away and disconnected from the people it sustains.

Multi-use development was envisaged on one-third of the site with two-thirds retained for agriculture, recreation and education uses, including specifically, more than 200 acres dedicated, in perpetuity, for community-controlled local agriculture under the concept of Community Trust Farming. The Southlands is a microcosm of all that is innovative and regressive in British Columbia's approach to planning for the sustainability of agriculture.

Southlands History

A 550-acre tract of land in southeast Tsawwassen, the Southlands was originally part of the large-scale family farm known locally as the Spetifore Lands. Economic and political shifts that began in the 1950s and culminated in the creation of the Agricultural Land Reserve (ALR) (1973),

coupled with the impact of the Canada Free-Trade Agreement (1989) and the North American Free Trade Agreement (1994) presaged the move toward the globalization of the economy and a decline in the perceived need for local agriculture.

Southlands was removed from the ALR in 1981 on application of The Corporation of Delta, based on their assertions of incompatibility with the surrounding urbanism, poor agricultural capacity and the need for growth. When a large-scale housing development was defeated based on local opposition in 1989, community fears over urban sprawl, and protection of agricultural land were cited. The current trend in Delta, with its moderate micro-climate, is toward greenhouse based agriculture.

Kwantlen Polytechnic University's Institute for Sustainable Horticulture worked closely with proponents of the Southlands to research and recommend strategic ways through which agriculture could be integrated fully and effectively into the planning, design, economy and social capital of the proposed community. The ideas laid out by Kwantlen are one example of the Institute's focus on bringing forth applied research, education and extension programming designed to illustrate how municipal governments can enable and support local scale, human intensive, and economically sound agriculture, and to demonstrate the direct and positive impacts that regional food systems can have in enhancing food self-reliance and food security in British Columbia.

Community Trust Farming was proffered, as a way to ensure that the land given to the municipality by the landowner would remain dedicated for the kind of farming that enhances local food self-sufficiency, promotes community health and education and substantially contributes to the regional economy. It is grounded in a view of sustainable agriculture that acknowledges the strategic role municipalities can play in creating and supporting local food systems that build capacity for long-term production of safe, affordable wholesome food; protect enhanced ecological services; and support community health, wellness and prosperity that benefits both farmers and the broader society.

This view of community trust farming is supported by research published by the Land Conservancy of BC. It can be a catalyst for economic and employment diversification, enhanced quality of life for farmers, and as an approach to solving perhaps the single most challenging puzzle: how to take the speculative value out of agricultural land while ensuring farmers have income security when they retire, and the next generation can afford access to land to farm.

Three Options for Southlands

At the time of writing, the fate of the Southlands defies easy prognostication. A five year planning process has resulted in a series of contentious but inconclusive public hearings, produced vitriolic media campaigns, a highly unpopular local area plan review, a failed and ill-conceived attempt to put the land back into the ALR, a disputed Mayor's Summit, a polarized community, and a vilified land owner.

Three outcomes are plausible.

- If current conditions are allowed to persist, the combination of inconsistent planning for agriculture and community paralysis will subvert any resolution to the land-use questions that have persisted around the former Spetifore lands since the 1980s.
- If the current application is approved, The Corporation of Delta inherits 80 per cent of the land earmarked for agriculture without a clear plan to make it economically and sustainably viable, and yet another community is established that may be contiguous to but not integrated with agriculture (like Terra Nova in Richmond, BC or any number of other local examples).
- A third option, consistent with the original concept, could see not only the full integration of agriculture and urban culture on the Southlands, but also, the Southlands becoming a strategic cornerstone of a regional food system strategy in which enhanced food security and increased food self-reliance are woven directly into the planning, design, economies and social capital of the communities and regional districts across southwest BC.

Our attempts to stimulate discussion on potential land-use planning strategies and public policies that could encourage small-lot, local-regional food systems as an integral element of sustainable communities while accommodating regional growth and doubling of the region's population seem to evoke a dismissive, if not visceral, response from some local politicians, planners, agrologists and residents.

If only the arguments, counter claims and critiques could become the foundation of a more substantive debate about the optimal nature, form, and scope of the food system that should exist in British Columbia, we might collectively be able to address the question: what kind of food system will ensure and enhance the sustainability of agriculture and our human settlements?

♦

Dr. Kent Mullinix and Dr. Arthur Fallick, research scientists with the Institute for Sustainable Horticulture, Kwantlen Polytechnic University, are currently collaborating with an interdisciplinary team to design regional food systems and implementation plans for southwest BC, and the Yukon. Funding to begin this work has been provided by the Yukon Agricultural Association and the Real Estate Foundation of BC.

Purple Thistle Guerilla Gardeners

by Ilana Fonariov

I left my house at 7:10 in the morning, fifteen minutes before a cargo van was set to depart for a Victoria bound ferry. The sun poured pink and purple dyes into the rivers of the sky as I biked furiously through the industrial lowlands towards the Purple Thistle, East Vancouver's free collective-run youth space for arts and activism. There was no way I was going to let my little legs stop me from getting to that van on time. It was going to be my free and first time ticket to the Island, and I was going with the Guerilla Gardeners of the Purple Thistle to pick up fruit trees for our future food forest.

I passed by the food forest to be and glanced at the rye that was almost knee high. A year ago this sliver of land was grass and gravel and now this winter cover crop was protecting and preparing the soil for the fruit trees to come.

The CN train tracks run across the site's edge, bisecting the struggling marsh bordering the primed area. I was told that the native grasses and plants are straining to regenerate the area into what it used to be, a wetland. They've been helped by the guerilla gardeners' clean-up efforts which started in the fall of last year.

"When we first started working on the site, we had to clear out all the garbage. There were propane tanks and TVs," said Marla Renn. Marla's been with the project from its budding stages. It took Marla and a group of women from the Purple Thistle's Dream Seeds program two days to clear out all the litter.

"Tomorrow it will be filled with baby trees," said Adam Huggins, speeding beside me. Adam began the food forest plans. After the first Thistle garden was planted, guerilla style, in the spring of 2010, he applied and obtained a generation green grant for 12,500 dollars. He then collaborated with Thistle folk to fruit his plans forth.

While clearing the trash and rebuilding the soil for the food forest the guerilla gardeners had to deal with their first garden's adjacent business owners, who feared the surge in "youth activity."

"They were citing the fact that there would be low income youth in the area and they said this would bring up crime," explained Marla. Lacking proof and reasonable ground to object to the gardens, the city defended the Thistlers' side and gave them official city recognition as a community garden.

Adam and I flew by one of the gardens, currently sprouting loads of garlic. We glimpsed the garlic spikes, shooting up into the late winter morning, before we arrived at the Thistle. Across from the lime green building rows of winter weathered crops sat. They were planted by a group of Thistlers who, according to Adam, "knew very little about what they were doing." They planted the vegetables and "decided to ask questions later." When summer came around most of the kids ran off and Marla Renn stepped in as the gardens' anchor. Adam and Marla are now the central coordinators of the gardens. They function like the gardens' bees, consistently pollinating the work groups all the while maintaining the group's autonomy and horizontal decision making model.

A horizontal model of organization is meant to slash hierarchy and top down decision-making processes. It's another way to systemize groups in a way that fosters greater equality by extinguishing oppressive group power dynamics.

"Our organizational model is a training ground for us and a model for the wider community," Marla explained. She said the Thistle creates a safe place to "unlearn and relearn" the ways we've been socialized to bring about better ways of working and living together.

Though this thriving project is a city-recognized community garden, it's unlike most community gardens in Vancouver – there are no individual plots, and everything is free. There are no age limits, no membership fees, and no expertise needed. Anyone can come garden, lend a hand, harvest some food or just sit and watch.

This urban youth agriculture project is a commitment-flexible urban farm that has two communal gardens, one urban food forest and wetland bioremediation project, three beehives, worms, a public apothecary of herbal medicines, and working groups or "pods" on subjects like mushroom cultivation, soil building, and garden-related art activities. Every Sunday from 10 to 5 and Tuesday 2 to 5 there are garden work parties where various folk from the community come to share food, conversation and grounding work.

The Thistle's agricultural project has transformed the city's spatial limitations into an inspirational project. Adam explains that its unusual location raises awareness and starts conversation:

"Thriving out of poor industrial soils in the harshest environmental conditions, the gardens stand not only as a demonstration of what is possible in the most difficult contexts but also as an invitation to join in the re-imagining of urban space," he said.

Imagination and innovation pad the heart of social activism. We can't let gravel and concrete stop us from planting our seeds of change and we need to find strength in each other to fuel our way forward.

As I was imagining how False Creek used to flow all the way up to where Clark Street has been constructed, the cargo van pulled up. I slid the door open and saw strings of Marla's blonde hair escape the perimeters of her hat.

"I hope you're okay traveling illegally, because you won't have a seat belt."

"Oh, no worries, I live my life as an illegal." With that I clambered on board and we drove off to the ferry.

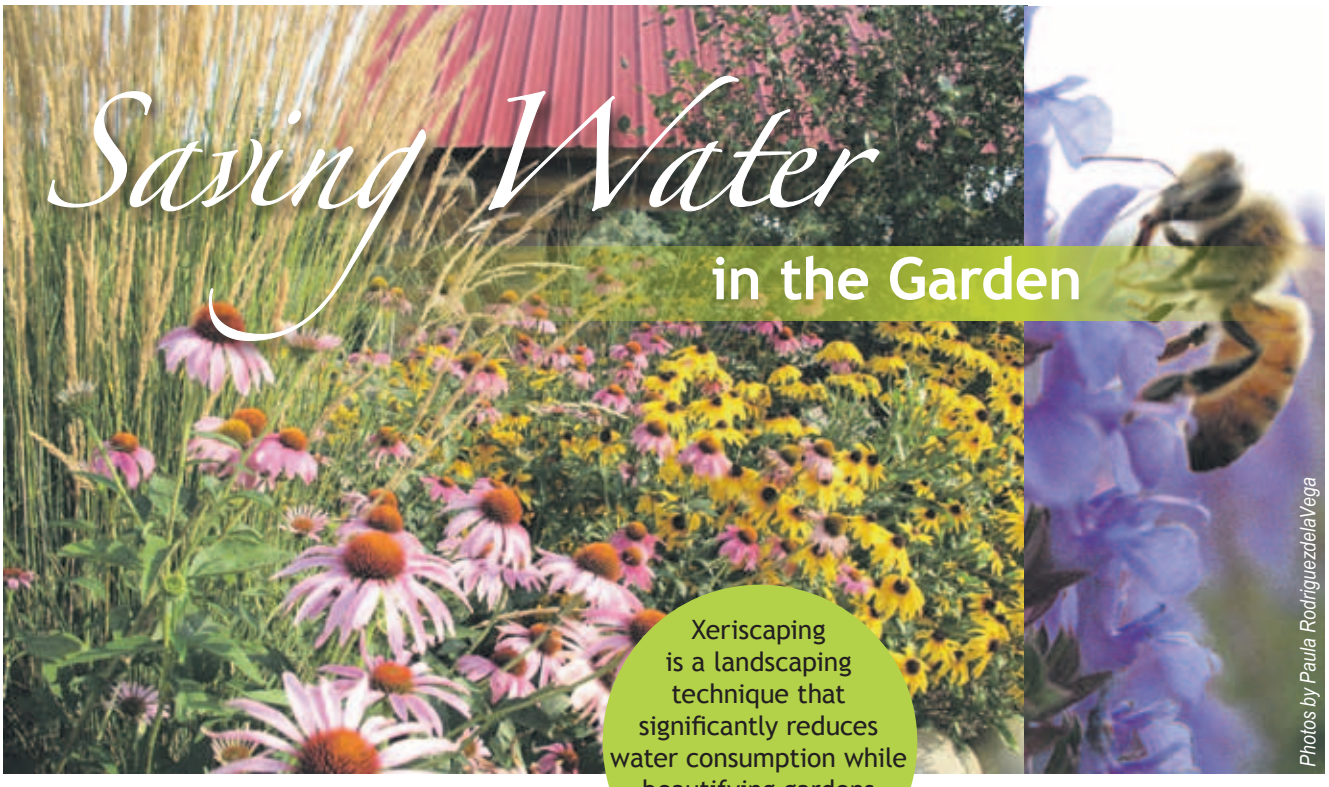
Thanks to a collective effort of fifty friends and strangers alike, on a cold, late winter day, fifty trees were planted and are now budding on the industrial margin.

These trees will grow into a self-sustaining perennial food forest open to any one for picking and caring, challenging our society's obsession with individualism and self-sufficiency because the organic agroforestry system relies on mutual trust, work, and collaboration to thrive.

♦

Ilana Fonariov is a blogger, meditator, food and film maker currently finishing her Bachelor of Science at the University of British Columbia. Visit her blog at *www.puzzeledpieces.wordpress.com*

Saving Water in the Garden



Photos by Paula RodriguezdelaVega

Xeriscaping is a landscaping technique that significantly reduces water consumption while beautifying gardens and reducing maintenance.

by Paula Rodriguez de la Vega

Water in the form of rain and snow is scarce in some areas of British Columbia. Areas of the Okanagan, Thompson, Similkameen and East Kootenay valleys receive less than 400 mm (15 3/4") of precipitation a year, compared to Vancouver which receives at least 1,250 mm (50") a year.

These same valleys also have the hottest summer temperatures in BC. As a result of this and other climatic and soil factors, the natural vegetation that grows here has evolved to survive drought conditions. These dry valleys are picturesque with expanses of golden grasslands and the occasional Ponderosa pine tree. They are quite different from the temperate rainforests of the coast but just as full of biological diversity.

Living in these desert-like valleys allows residents to grow some amazing gardens. However, the price is high water use. According to research compiled by the Design Centre for Sustainability at UBC for the town of Oliver, lawn and landscape irrigation can represent 50 to 70 per cent of domestic water use.

Xeriscaping is a landscaping technique that significantly reduces water consumption while beautifying gardens and reducing maintenance. Xeriscaping involves seven basic principles: planning your landscape, the selection of plants with minimal water requirements, minimizing the amount of turf area, the use of soil amendments such as compost, the use of mulch, and efficient irrigation and maintenance practices.

Xeriscape can also be applied to other areas of BC, even on the west coast. You might live in an area which experiences several weeks of drought in summer or live on a south-facing slope where it gets very sunny and hot. With climate change, these hot and dry areas will become more prevalent and will benefit from water conservation.

Designing a Waterwise Garden

Your yard is an extension of your home. Imagine it's your outdoor living room. Get creative and have fun redesigning it with water conservation in mind.

Start by drawing a base map including the lot line, the buildings, patios or decks, telephone poles, septic fields, utility meters, heat pumps, and any other feature that will remain. Be aware of how the rainfall or irrigation would flow. What is the slope, where are the depressions, and possible water run-off paths? Indicate any natural features such as creeks or existing vegetation you intend to keep. Lastly, draw the North arrow and wind direction.

Consider the following when designing your waterwise outdoor living area:

Where are the sunny and shady areas? Frost pockets, windy areas? Where are your movement corridors (walkways, driveway, paths, etc.)? What do you use your outdoor area for (play areas, entertaining, BBQing, pets, sports, growing food, etc.)? Are there views or noise you want to keep or block out? Any wildlife you wish to attract (birds, beneficial insects) or deter (rattlesnakes, bears, etc.)?

To cut down on your water use, design your outdoor living area by water zones. Group plants with similar water

and sunlight needs. This will also help to better design your irrigation system. For instance, Zone 1 can include the vegetable garden, fruit trees, the lawn, and thirsty ornamentals. This becomes like an oasis in the grasslands as it gets a lot of supplemental irrigation. It is common to locate this zone closest to your home.

As you move further away, create zones with less water need. Zone 2 houses the plants that require low amounts of water, perhaps with micro or drip irrigation.

The driest zone is Zone 3 and is home to plants that do not require any irrigation once they are established. This is the zone where native plants and drought-tolerant ornamentals thrive. It can look very manicured or it can be wild and natural. It can also be a natural grassland, wetland, rocky slope, or whatever natural ecosystem you live within. If you live on a large lot or a farm, make Zone 3 your largest zone in order to save the most water.

Turf is Out

Lawns, the beloved well-manicured expanses of green grass that our culture has held on to from the colonial past, are costly to maintain – on the pocketbook, on your yard time, and on the environment (water use, fuel or electricity to run the mower and trimmer, air and noise pollution, pesticides and fertilizers).

Reducing the amount of conventional Kentucky Bluegrass lawn in your landscape is the single, most effective way to save water. As you redesign your landscape, ask yourself, "How much turf do I really need? How do I use it?" Most importantly ask, "Can I reduce its square footage?"

If you don't really use the lawn, don't be afraid to get rid of all of it. Get creative with a mix of drought tolerant plants and alternative ground cover like permeable bricks, wood mulch, or gravels. There are plenty of green and silvery ground covers that use less water: woolly thyme, kinnikinnick, or creeping junipers to name a few.

For those who love the look of the lawn and can't bear to do without it, try reseeding or overseeding the thirsty Kentucky Bluegrass with other more drought tolerant grass mixes available at some garden centres. These can be fescues ('Eco-Lawn' or 'Enviroturf' brands), buffalo grass, or a buffalo grass/blue grama grass combination. Low-water alternatives can be mowed or left to grow tall, forming a meadow.

Choosing Drought-Tolerant Plants

Xeriscaping uses drought-tolerant plants that thrive without supplemental irrigation. However, even these hardy plants need irrigation for the first two years after transplanting or until their roots are well established.

Depending on where you live in BC, different plants will successfully grow without supplemental water. Native plants often do best. If you do not live in an arid area, look for native plants that grow on dry, south facing slopes.

Native plants have many benefits: a) they provide food and shelter for wildlife, b) they are adapted to your region so use very little water, if planted in an appropriate location, c) they are low-maintenance, d) they are beautiful, unique, and there are many to choose from.

To learn about native plants visit your local nursery and ask if they carry any, or ask if there are any local nurseries that specialize in propagating native plants. If you like exploring nature, take a walk in a nearby provincial park or protected area with a plant book, and start identifying and learning about the unique native plants that grow there. Remember not to pull plants out of the ground from their native surroundings. Get them from a plant nursery that specializes in propagating them, or salvage native plants (with permission) from lands scheduled for development.

Appropriate soil preparation is important when planting a waterwise garden. As a general rule, most drought-tolerant plants tend to thrive in well-drained soils with a neutral or slightly alkaline pH, and low to medium fertility. So, amend your soil accordingly.

Mulch it

Take a walk in the grasslands or the forests and you will notice that nobody is raking up the ground. Leaves, pine needles, dead grass, and other organic matter blanket the soil, thus reducing evaporation, preventing weed seeds from sprouting, and adding nutrients.

The summer sun can heat up exposed soil considera-

Continued on Page 20 ⇨

⇦*Saving Water continued*

bly, sometimes harming plants. A layer of organic material helps to moderate the soil temperatures and also prevents the soil from drying up and crusting.

As gardeners we try to mimic nature by adding a blanket to the soil; we call it mulch.

Organic mulches can be material like shredded leaves, straw, compost, pine needles, bark chips or chipper debris, saw dust, shredded bark, grass clippings, and manures. The recommended depth is two inches for fine mulch to four inches for rough mulch. Check the depth once a year, and supplement with additional mulch as needed.

Remember not to bury stems or trunks of trees, shrubs, or woody perennials as this increases pest and fungal problems. Some mulches can be flammable, so it is important to place them away from wooden walls and fences.

Some plants, like cacti, succulents, and artemesias, do not like mulch, as too much moisture makes them rot.

Inorganic mulches are non-living materials like black polyethylene plastic, landscape cloth, white plastic, or different rocks and gravels. They last a long time and are great for high traffic areas like pathways.

If you opt for a rock garden and use rock mulch keep in mind that the sun will heat them up. Even drought tolerant plants will be stressed by the increased temperatures and they will need to be watered more often, so this doesn't end up saving on the water bill. They also heat up the ambient air so your air conditioning bill might go up too.

Rock features have their place though, and they do look stunning when used as part of a garden. So with common sense and creativity, there is always a good spot for the inorganic.

Saving Water Drip by Drip

Xeriscaping aims to conserve water by implementing an efficient irrigation design. Group your plants according to their watering and sun exposure requirements, and only water when it is necessary. Generally, this is when the leaves of shrubs and perennials begin to droop, or in the case of a lawn, when you can see your footprints on the grass when you walk on it. If the top inch of soil next to a plant feels dry when you wiggle your finger into it, this is another sign that water is needed.

Use an irrigation system that delivers water directly to the soil within the root zone of the plants needing water. Low flow systems, such as "micro" or "drip" irrigation are very efficient. This system includes a flexible supply tube that lays on the soil surface, with individual emitters that supply each plant. Gardeners can consult with local irrigation suppliers for information before starting a project.

For many garden areas, complex irrigation is not necessary, and hand-watering or moving sprinklers will suffice. This is especially the case for the dry or natural zone which will not require regular irrigation once the plants are established.

Low-Maintenance Landscape

Xeriscape is not zeroscape. Even rock and gravel landscapes need to be cleaned to keep the organic matter from building up and weeded once every couple of years. A drought tolerant plant garden can be low-maintenance though. The main things to keep on top of are: weeding (but mulching helps reduce it), pruning (e.g., cut out dead, diseased and damaged limbs), and topping up the mulch when necessary. Most xeriscape plants do not require fertilizer or irrigation once established.

♦

Paula Rodriguez de la Vega is an ecologist living in Oliver working on habitat restoration, species at risk stewardship, xeriscaping, and local food initiatives.

Sponsored by the Friends of Cortes Island Sustainability Education Fund

Sample Resources

Durance, Eva. *Cultivating the Wild; Gardening with Native Plants of BC's Southern Interior and Eastern Washington*. Nature Guides BC, 2009.

Rodriguez de la Vega, Paula. *Waterwise Gardening for Home and Small Acreage Owners of the Oliver Area,* 2011. Download free from Town of Oliver at *http://oliver.fileprosite.com/Documents/DocumentList.aspx?ID=28370*

Okanagan Xeriscape Association, *http://okanaganxeriscape.org*

Naturescape BC has a series of books on gardening with native plants. Ph: 1-800-387-9853 to order.

Habitat Acquisitions Trust, *Gardening with Nature, www.hat.bc.ca*

Unfunded Infrastructure Upkeep

by Jamie Bowman

While the over-borrowing problems of Greece and Italy are making headlines, Comox Valley BC taxpayers are learning they will have some very big bills in the near future – to pay the upkeep on past development.

Termed "unfunded infrastructure liability," the bills coming due will be for fixing and replacing worn out pipes and streets. Local governments don't often speak about this big bill, but Town of Comox public works superintendent Glenn Westendorp says Comox alone is facing costs of about $160 million. In contrast, the entire annual budget for the Town in 2010 was a mere $16 million. "When those figures are extrapolated to the rest of the Valley, it suggests a community liability of $300-400 million," says Jack Minard, local government coordinator for the Comox Valley Conservation Strategy. "No governments here have that kind of money."

It's an issue that did not hit the radar in the BC fall municipal elections. Infrastructure – roads, curbs, gutters, sidewalks, storm-water drains and pipes, water lines, and sewer pipes, as well as dykes, dams and levees – are costly budget items.

In new developments, the cost of engineering and construction is borne almost fully by the developer. But once built, the developer's responsibility ends. A few years later come the expenses of maintenance and eventual replacement. Only 20 per cent of the lifetime costs of infrastructure are paid by new development, so the remaining 80 per cent must be funded by the community, according to information presented at Convening for Action Vancouver Island (CAVI), a meeting last summer of engineering representatives from the four Comox Valley governments, where Westendorp revealed Comox's infrastructure liability.

"Like most of us faced with an aging car, we have to borrow money to pay for a replacement unless we've put money aside to cover it," says Minard. "But few of us do such financial planning and neither do most municipalities. If we keep approving development at the current rate and type we have now, the coming costs will continue to grow exponentially."

Only 20 per cent of the lifetime costs of infrastructure are paid by new development, so the remaining 80 per cent must be funded by the community

The situation in the Comox Valley is typical of most other BC communities. According to CAVI, most local governments have not set aside sufficient funds to replace aging infrastructure. The typical life span of municipal infrastructure is 20 -o- 75 years and the provincial government has stated that it will not fund the "infrastructure gap" created by municipalities not planning for funding replacement costs. Locally, municipalities have funded some of the maintenance and upgrading work by using fees (development cost charges or DCCs) that municipalities charge developers for new building units.

"The problem with using DCCs to pay infrastructure replacement costs is the need for continual development to collect fees," said Minard. "Currently most of the development is low density on raw land. This sprawl development results in much more infrastructure in the ground, per taxpayer, which will require more money in the future for repairs."

A whopping tax increase – an estimated 50 per cent, according to CAVI – to cover the costs of fixing infrastructure like streets and pipes, is an idea not likely to fly at any elected council meeting. The current practice – approving new developments and then using the resulting income from Development Cost Charges to pay for replacing infrastructure in other locations – is not sustainable.

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Written for the Comox Valley Conservation Strategy Community Partnership

Conservation Friendly Alternatives

• Reduce infrastructure requirements for new development, such as reducing street and road widths, eliminating curbs and gutters, and eliminating storm-water pipes in favour of on-site rainwater management.

• Extend the life cycle of infrastructure by ensuring that development is not expanded into areas such as wetlands, that naturally shorten the life of roads and pipes.

• Make better use of existing infrastructure by using vacant land already serviced, and increasing dwelling-unit densities, for example with granny suites and studio apartments on larger residential lots.

• Reduce wear and tear on existing infrastructure by decreasing its use. Adding cisterns and rain gardens cuts down on storm-sewer loading (and pollution in receiving streams), low-flush toilets reduce water and sewer loads, and improved public transit reduces street traffic.

Forward – Thinking Forestry

Clayoquot Sound's War in the Woods isn't over. What can help end it?

by Julia Prinselaar

Nearly two decades after the last of 10,000 protesters packed their bags and left Clayoquot Sound in the final days of a summer-long logging blockade in 1993, the fight to protect the region's ancient temperate rainforest continues.

In some ways the demonstrations were a success. When the province announced a Land Use Decision earlier that year that left approximately 74 per cent of old growth forest in the hands of industry, the protests that followed became a driving force behind a new set of forest management practices from the Clayoquot Sound Scientific Panel for Sustainable Forest Practices (CSSP). Harvesting rates fell by more than half and most of the industry's goliaths eventually sold their forest tenures and left.

But the panel's job was to address how to log in Clayoquot Sound, while protesters fought to relinquish old growth logging altogether. Today the area's only licensee in operation is First Nations-owned Iisaak Forest Resources Ltd., which holds tenures covering approximately 52 per cent of Clayoquot's 262,000 hectare land base. The Hesquiaht, Ahousaht, Tla-o-qui-aht, Ucluelet and Toquaht First Nations collectively own Iisaak Forest Resources Ltd.

Iisaak follows panel guidelines and uses Variable Retention methods, leaving anywhere from 15 to 70 per cent of forest behind on a cut block.

However the company hasn't followed through with long-term monitoring and adaptive management, another key panel recommendation, according to Laurie Kremsater, a forest habitat ecologist who was on the Clayoquot panel.

"The CSSP was strong on saying, develop the watersheds you're already developing and put the panel's recommendations into place in these areas; conduct monitoring – see if the recommendations are working before you go into undeveloped areas. The trouble is that now the developed watersheds have been developed right up to the point where further development would contravene panel recommendations. Either the company relaxes those guidelines, or goes into new areas."

> "The thing that they did figure out is that you can't impose protection [for forests] on a nation and not provide any alternative economy,"

In late 2011, Iisaak collaborated with local partners to launch the Clayoquot Sound Monitoring Program and plans to monitor forest biodiversity and watershed conditions in the Flores Island watershed this year. The program is funding dependent and limited in scope – animal studies, for example, are long-term and costly – but it's a start.

"We are hoping that it will lead to feedback between monitoring and decisions made, assisting in developing sustainable management plans for forestry operation," said Lily Burke, a biologist with Central Westcoast Forest Society, a non-profit helping to facilitate the program.

1999 MOU

While only one third of Clayoquot Sound is legally protected, Iisaak and a group of four environmental organizations signed a Memorandum of Understanding in 1999, committing conservationists to support Iisaak gaining international markets for their products. In turn, Iisaak pledged to achieve Forest Stewardship Council certification and designate "Eehmis," (undeveloped areas that are, in Nuu-chah-nulth language, "very, very precious") off limits to logging.

"What the MOU did was it created a peace in the woods," says Dan Lewis, executive director of Tofino-based Friends of Clayoquot Sound (FOCS).

But that changed when Iisaak was granted a logging road permit on Flores Island in April 2011. Applications for two offshore heli-drop zones are under review.

The remote island, a 45-minute boat ride north of Tofino, is home to the Ahousaht First Nation, one of five native bands that own the forestry company. It is one of the last intact watersheds in Clayoquot Sound; 96 per cent of its area is old growth forest.

Potential logging on Flores highlights a discrepancy on where those Eehmis areas lie – environmentalists say the areas include the remaining intact watersheds of Clayoquot Sound, while First Nations contend those areas are defined at the discretion of the nations' hereditary chiefs.

FOCS did not sign the MOU but has since joined a group of six environmental organizations calling on the province to shelve the applications for Flores while it explores economic alternatives to industrial logging in Clayoquot Sound.

According to Lewis, part of that solution could come through Conservation Financing, a model developed in the Great Bear Rainforest.

In 2006 a set of agreements between government, industry, First Nations and environmentalists resulted in a $120 million fund for conservation management projects and ecologically sustainable business ventures along BC's central coast.

Lewis believes some of what was achieved in the Great Bear can be brought to Clayoquot Sound.

"The thing that they did figure out is that you can't impose protection on a nation and not provide any alternative economy," he said.

Moving forward

John O. Frank, chief councilor of the Ahousaht First Nation, speaks with candour when it comes to his vision for the nation.

"If I didn't own a car, if I didn't own a telephone … I wouldn't even look at another tree," he said. "We have people who want to become part of society in that style of life, and we can't change that because it was introduced to us. When you introduce something to society, how do you know it's going to stop?"

According to Frank, 60 per cent of the island's work force is unemployed. More than 200 of its on-reserve members are under the age of 20.

Valerie Langer, ForestEthics director of BC Forest Campaigns, assures there is more to the local economy than what traditional industry paradigms have to offer.

"The options are endless… from shellfish culturing to seaweed processing for Asian markets, to essential oils, to tourism opportunities to the stuff you might not even think of in terms of a place like Ahousat – call centres," said Langer.

Take a project between the Heiltsuk, Haisla and Haida First Nations, Coastal First Nations-Great Bear Initiative, Royal Roads University and ForestEthics for example. Their working group produces a line of bath products made with essential oils harvested from cedar boughs that are provided at a Victoria-based hotel. There are plans to initiate small-scale commercialization this year, according to Johanna Helbig, project administrator for Coastal First Nations-Great Bear Initiative.

"… In order to move to a sustainable conservation-based economy in Clayoquot Sound, we have to have a very holistic approach that isn't paternalistic, but that offers what we can to enable [First Nations] to do what they would like to do," added Langer.

Back in Clayoquot, conservation talks are prospective at best, but the Tla-o-qui-aht First Nation – partial owners of Iisaak Forest Resources – is listening.

"We support any direction that will feed healthy homelands," said Saya Masso, natural resource director for the nation. "I see a one hundred year economy – a one thousand year economy … I want to support the sustainable [jobs]. I want fish in our rivers and tourism, campgrounds, trails, and a value-added forestry industry with a lower footprint – and everyone working together to recognize and achieve that."

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Julia Prinselaar is a freelance journalist living on Salt Spring Island, BC.

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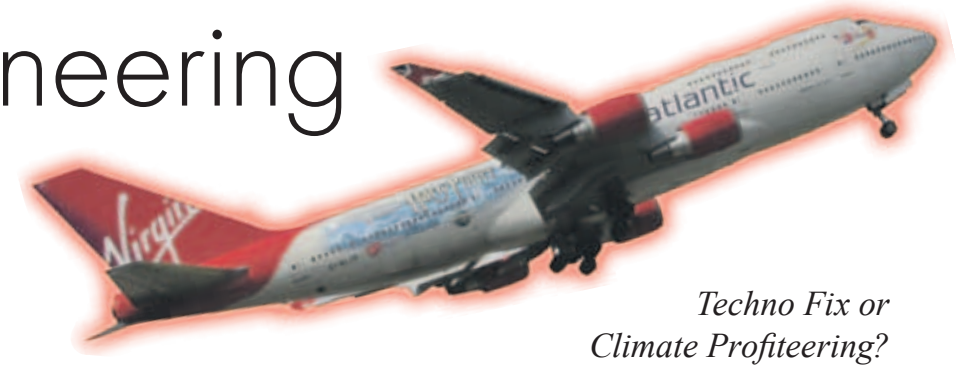
Photo by McKay Savage

Geoengineering



by Joyce Nelson

Techno Fix or Climate Profiteering?

Big Oil, having spent years and millions of dollars funding climate skeptics in order to delay real-world action, has now become a leader in funding geoengineering. The cynicism is breathtaking.

In 2007, billionaire Sir Richard Branson (chairman of Virgin Group) and Al Gore (former US vice-president) spearheaded a competition called the Virgin Earth Challenge – a contest offering $25 million "to find commercially viable designs to permanently remove greenhouse gases from the atmosphere." As Branson put it, "If we could come up with a geoengineering answer to this problem [of climate change], then Copenhagen [climate conferences] wouldn't be necessary. We could carry on flying our planes and driving our cars."

Branson has really big corporate plans for flying, so a "technological fix" for climate change is something in which he's been willing to invest millions. Branson's "carbon war room" is backing a variety of projects, and he has also contributed funding to the UK's Royal Society for geoengineering research.

Sir Richard Branson is just one of a handful of billionaires who are bankrolling geoengineering research by a small group of climate scientists to manipulate the climate on a global scale. This so-called "geo-clique" is now lobbying governments and international organizations to back and invest public funds into geoengineering research.

Geoengineering technologies and methods are highly controversial. Friends of the Earth has called geoengineering "mad, bad and dangerous." The Ottawa-based ETC Group calls it "climate-profiteering" and has been calling for a moratorium on real-world geoengineering experimentation.

The ETC Group's October 2010 report, *Geopiracy: The Case Against Geoengineering,* blew the whistle on the "geo-clique." Then, late last year, Clive Hamilton, a professor of Public Ethics at the Australian National University, wrote in *The Guardian* (Dec. 5, 2011) that "the geo-clique are lobbying for a huge injection of public funds into geoengineering research, justified on the grounds that 'the world' (read America in the era of the Tea Party) will never countenance the carbon abatement policies we so badly need."

Noting that the geo-clique is "working at framing geoengineering positively," Hamilton stated: "Now that the Beltway is getting involved, the pressure is on for the United States to take control of the geoengineering agenda. While the subject was regarded as taboo only five years ago, the normalisation of geoengineering as a legitimate response to global warming is now proceeding rapidly."

Critics of geoengineering say that it could have disastrous unanticipated side effects, could be used as a weapon, and involves the same paradigm of controlling Nature that created climate change in the first place; but especially, as *Geopiracy* puts it, "the geoengineering approach shifts the discussion from reducing emissions to an end-of-pipe solution."

Perhaps not surprisingly, some of the advocacy/financing for geoengineering's "end-of-pipe solution" is coming from Alberta tar sands backers. Indeed, some members of the geo-clique are directly involved in the tar sands.

Fly Me to the Moon

Virgin Galactic, a subsidiary of Sir Richard Branson's Virgin Group, has already collected $60 million worth of deposits on tickets for its new "space tourism" venture. For a mere $200,000 per person, anyone can become an "astronaut tourist" on Virgin's first spacecraft: a six-passenger, two-pilot spaceship being built by Northrop Grunman and to be commercially launched from a desert in New Mexico sometime in the next two years. The spacecraft will reach a sub-orbital altitude that exposes passengers to a few minutes of weightlessness and a view of planet Earth like real astronauts have. In March 2012, Hollywood movie-star Ashton Kutcher became the 500th customer to sign up.

—J. N.

The Tar Sands Connection

On November 2, 2011, the 11 finalists in the Branson/Gore Virgin Earth Challenge (VEC) were formally announced at the Global Clean Energy Congress meeting in Calgary. Many geoengineering researchers and advocates were speakers at the three-day event (along with corporate reps from not-so-clean energy companies such as natural gas giant EnCana, Canadian Oil Sands Ltd., tar sands developer Cenovus Energy, and the Canadian Nuclear Association). All of the 11 finalists will be helped by the VEC to find partners to "bridge the gap between these pioneering ventures and commercially viable businesses."

One of the VEC finalists is the Calgary-based geoengineering company Carbon Engineering, whose president and majority owner is climate scientist David Keith. Professor Keith – a key member of the geoclique – has already found some key business partners. Billionaires Bill Gates and tar sands magnate N. Murray Edwards (vice-chair and director of Canadian Natural Resources Ltd.) reportedly both own major stakes in Carbon Engineering, whose industrial-scale technology is described as a "chemical-based CO_2 air capture system" which traps carbon dioxide directly from the air into a water-based solvent – a process that the *Washington Post* (April 5, 2012) recently described as potentially using so much water that it would "be depriving 53 million people of water" annually.

Nevertheless, a University of Calgary press release has enthused: "Imagine being able to combat climate change by capturing global-warming emissions from thin air – anywhere on the planet. That's exactly what a company, created from University of Calgary-affiliated scientist David Keith's research, located on campus, is working on. Keith is a fellow in the [University of Calgary's] Institute for Sustainable Energy, Environment and Economy (ISEEE) and an adjunct professor of physics."

According to *The Dominion* (Dec. 8, 2010), the University of Calgary's ISEEE website lists as its "collaborators" major tar sands corporations such as "Suncor, Total, Shell Canada, and the Canadian Association of Petroleum Producers" and one NGO, the Pembina Institute. (In the UK, Shell Oil has been criticized for funding geoengineering research at the University of Oxford, Plymouth Marine Laboratory, and University College London.)

The Guardian (Feb. 6, 2012) reports that professors David Keith and Ken Caldeira of Stanford University "are the world's two leading advocates of major research into geoengineering the upper atmosphere to provide earth with a reflective shield." Keith's reflective shield proposal has been described by *Report On Business* magazine (March 2008) as "photophoretic levitation," involving the use of a fleet of planes to launch trillions of tiny metallic disks to float above the ozone

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Some Geoengineering Projects and Proposals

1) Creating vast monoculture (and genetically-engineered) tree plantations for biochar, biofuels and carbon sequestration;
2) 'Fertilizing' the oceans with iron nanoparticles to increase phytoplankton that theoretically would sequester CO_2;
3) Building 16 trillion space sunshades to deflect sunlight;
4) Launching thousands of ships with turbines to propel salt spray from the oceans into low-lying clouds to whiten them for deflecting sunlight;
5) Dropping mega-tonnes of limestone into the oceans to change their acidity in order to soak up extra CO_2;
6) Blasting sulphate-based aerosols into the stratosphere to deflect sunlight;
7) Covering deserts with white plastic to deflect sunlight;
8) Digging up silicate rocks that absorb CO_2, pulverizing them and spreading them around;
9) Ejecting carbon dioxide from the atmosphere at the Earth's poles, using the planet's electromagnetic field and lasers;
10) Employing high-altitude blimps or a fleet of Boeing 747 aircraft equipped with hoses to carry sulphur dioxide into the sky to create cloud cover;
11) Launching a trillion mirrors into stable orbit to deflect sunlight;
12) Bio-engineering crops to be a light colour to reflect sunlight;
13) Refreezing the base of melting ice caps by applying mega-quantities of liquid nitrogen;
14) Exploding nuclear bombs on the moon to shift its orbit to block sunlight.

Sources: The ETC Group; The Economist (Sept. 6, 2008); Earth Island Journal (Autumn 2009); The Georgia Straight (March 23, 2010); The Economist (Nov. 4, 2010); The Guardian (June 15, 2011); The Ecologist (July 25, 2011); Fortune (Oct. 17, 2011); The Guardian (Feb. 6, 2012); Washington Post (April 5, 2012).

⇦ *Geoengineering continued*

layer and deflect sunlight.

The Guardian report continues: both Keith and Caldeira "have so far received over $4.6 million from [Bill] Gates to run the Fund for Innovative Climate and Energy Research (FICER). Nearly half FICER's money, which comes directly from Gates' personal funds, has so far been used for their own research, but the rest is disbursed by them to fund the work of other advocates of large-scale [geoengineering] interventions."

David Keith's FICER website explains that "Grants for research are provided to the University of Calgary from gifts made by Mr. Bill Gates from his personal funds … While Mr. Gates provides input from time to time on the fund, Drs. Keith and Caldeira make final decisions on projects."

By 2011, Gates had invested at least $400 million into geoengineering projects and patents, with *Fortune* (Oct. 17, 2011) calling him "the world's leading funder of research into geoengineering."

As the *Watershed Sentinel* revealed in its "Tar Sands Express" article (Summer 2011), over the past decade, Bill Gates has become a major shareholder in CN Railway, whose "pipeline-on-rails" is bringing tar sands bitumen to US refineries. When Gates and billionaire Warren Buffett (another pipeline-on-rails investor) visited the tars sands in August 2008, they were hosted by fellow billionaire N. Murray Edwards' tar sands company Canadian Natural Resources Ltd. and toured its $9.3 billion Horizon site north of Fort McMurray. Both Gates and Edwards have provided about $6 million in funding to David Keith's Carbon Engineering company.

Fortune (Oct. 17, 2011) recently reported that Carbon Engineering has received "$2.5 million in Canadian government grants."

N. Murray Edwards is also the co-owner of the Calgary Flames, President of Edco Financial Holdings, Chair and major shareholder in Ensign Energy (an oil services company), Chair of Magellan Aerospace Corp., and owner of several BC alpine ski resorts (Fernie, Kimberley, Kicking Horse) through his Resorts of the Canadian Rockies.

Selling Carbon Credits

Another Canadian billionaire, Edgar Bronfman Jr., is backing a US geoengineering company called Global Thermostat – also a finalist in the VEC. Bronfman, the former Warner Music CEO and heir to the Seagram's fortune, has invested $15 million in Global Thermostat, and he is the Executive Chair of the company. Bronfman is also a member of the National Advisory Board at JP Morgan and the Council on Foreign Relations. Edgar Bronfman Jr.'s son Benjamin Bronfman is associate managing director of Global Thermostat, which plans to build an air-capture system for removing CO_2 from the atmosphere. The company also plans to make a transportation fuel by extracting hydrogen from water and combining it with the CO_2 to make a low-carbon fuel.

One of the founders of Global Thermostat is Peter Eisenberg, a former head of research for Exxon. Several former Exxon engineers are designing Global Thermostat's geoengineering technology, with multinationals Corning and BASF also involved in development.

Another founder of Global Thermostat is Graciela Chichilnisky, who, according to *Fortune*, wrote the plan for the EU carbon market that came out of the Kyoto climate talks.

Apparently, most of the geoengineering companies intend to profit by selling carbon credits on such markets. For example, in one of its on-line publications, David Keith's Carbon Engineering Ltd. states that one of the "near-term opportunities" for profit is "extracting value for the 'negative emissions' achieved … under a carbon market such as the European Union Emissions Trade Scheme (EU-ETS)."

On February 6, 2012, *The Guardian* published a feature article by its environmental editor, John Vidal, on

the geo-clique and quoted the ETC Group's Diana Bronson: "What is really worrying is that the same small group working on high-risk technologies that will geoengineer the planet is also trying to engineer the discussion around international rules and regulations. We cannot put the fox in charge of the chicken coop."

The Richard Branson-funded UK Royal Society is currently engaged in organizing such discussion, and in February, the US Harvard Belfer Center for Science and International Affairs announced that it had begun accepting applications for "geoengineering policy research fellows" in order "to improve understanding of the options for governance of geoengineering," adding that "selected fellows will be working under the supervision of Professor David Keith" of Carbon Engineering Ltd.

US Government Funding

Both Professors Keith and Caldeira are members of the Washington-based Bipartisan Policy Center's Task Force on Climate Remediation, which in October 2011 urged that the US federal government begin funding research on geoengineering. According to *The Guardian* (Oct. 6, 2011), the Bipartisan Policy Center "is part-funded by big oil, pharmaceutical and biotechnology companies," and their Task Force is "the cream of the emerging science and military-led geoengineering lobby, with a few neutrals chucked in to give it an air of political sobriety… In sum, this coalition of US expertise is a group of people which smell vast potential future profits for their institutions and companies in geoengineering."

The Bipartisan Policy Center's Task Force recommended that the White House Office of Science and Technology Policy coordinate the geoengineering research. President Obama's energy chief, Steven Chu, is a former student of Peter Eisenberg (of Global Thermostat).

On Dec. 8, 2010, *The Dominion* reported that "the Canadian government has shown interest in becoming an increasingly larger player" in geoengineering. "I don't think the Canadian public, or even Parliament, has any idea that the government of Canada has already invested in geoengineering research," the ETC Group's Diana Bronson told *The Dominion*.

More Canadian Funding?

Now there's speculation that the Harper government may well be committing millions more to geoengineering, at the same time that it has been cutting almost anything to do with climate science and environmental regulation and protection.

On Feb. 29, 2012, PostMedia News reported that the Harper government is adding $90.3 million in funding at Environment Canada "to support what it describes as its 'clean air agenda,'" with the money (in the government's words) providing "a platform to deepen engagement with the United States on climate-change issues and enhancing Canada's visibility as an international leader in clean-energy technology."

The Harper Cabinet is also rethinking its $7 billion in research and development funding, with a move to more company-focused research and more direct funding of business R&D.

The website of The GeoEngineering Centre at Queen's University in Kingston lists "research funding opportunities involving industrial partners" and includes the federal government's Canada Foundation for Innovation as a source of funding.

This is a government that listens to Big Oil, and as one oil analyst has claimed, "Geoengineering would be much cheaper than reducing emissions, and also much quicker to produce results."

In June 2011, more than 125 environmental, development, and human rights organizations from 40 countries jointly issued a letter opposing geoengineering as a "false solution to the climate crisis." The letter was sent to Rajendra Pachauri, head of the UN Intergovernmental Panel on Climate Change (IPCC) after documents were leaked revealing that the IPCC was organizing a meeting of the world's leading geoengineering experts in Peru.

The IPCC's next assessment, due out in 2014, will include several chapters on geoengineering. But, as the letter to Pachauri stated, the international body has no mandate to consider the legality or political suitability of using geoengineering.

Australian professor Clive Hamilton says, "Anyone who has observed the politics of climate change knows that governments are keen to find alternatives to imposing deep emissions cuts. If geoengineering appears to be an alternative to mitigation, then governments will grab it if they can."

Big Oil, having spent years and millions of dollars funding climate skeptics in order to delay real-world action and sow confusion about climate change, has now become a leader in funding geoengineering. The cynicism is breathtaking; but the potential for climate-profiteering is obvious.

Whether our tax dollars should be shovelled into geoengineering schemes is quite another matter. As a recent editorial in *The Guardian* put it, "Watch out. This could be the start of the next climate wars."

♦

Joyce Nelson is an award-winning freelance writer/researcher and the author of five books.

Photo by Daz /SWAN MAN

Are the Bt Toxins Safe to Eat?

Researchers Track Harmful Effects of Pesticides in Genetically Modified Foods

by Anne Sherrod

The pesticides Bt and Roundup loom large amongst the many concerns regarding genetically modified (GM) foods. The bacterium *Bacillus thuringiensis* (Bt) was once hailed as a completely natural, safe insecticide, because it produces toxic substances that target certain insects, but do not affect animals or humans. But are the toxins safe for humans to eat? That is the question that arose when agrochemical companies set about modifying and transferring genes from the bacterium into food plants, which then make their own version of the insecticide.

Once used in Canada as a roadside weed killer, Roundup is now sprayed on crops that have been genetically engineered to tolerate it, so the fields can be chemically weeded. This trait, too, is produced by modifying and transplanting genes from bacteria to food plants. Though the crops survive the Roundup, they also absorb it, so it enters our food.

Today in Canada, corn, soybeans, canola, and sugar beets are said to be the only genetically modified foods on the market. However, GM seeds for other grains and vegetables have been registered and approved for consumption by Health Canada.

The main active ingredient in Roundup is the herbicide glyphosate. Many animal studies since the 1980s have demonstrated birth defects and other reproductive problems from glyphosate and Roundup. Most recently, a study published in 2010 reported birth defects in frog and chicken embryos from exposure at doses much lower than those used in agricultural spraying.[1]

In recent years a research team at the University of Caen (France), working with human cells cultured in the laboratory, has been steadily documenting damage to DNA, cell respiration and cell membranes, as well as endocrine disruption, due to glyphosate and Roundup. In some cases, these effects were observed at concentrations similar to what is allowed in food. For instance, endocrine disruption began at a concentration of

A research team at the University of Caen (France), working with human cells cultured in the laboratory, has been steadily documenting damage to DNA, cell respiration and cell membranes, as well as endocrine disruption, due to glyphosate and Roundup

0.5 parts per million, but the US Environmental Protection Agency allowed 400 parts per million in some food and animal feed.[2]

Now, in 2012, the University of Caen team, led by Professor Gilles-Eric Séralini, has published research showing that a modified Bt toxin from GM foods, called Cry1Ab, kills human cells.[3] Another modified Bt toxin in the same experiment, Cry1c, did not kill the cells.

This study was the first to use the modified Bt toxins from genetically modified plants. Previous studies had all been carried out on the toxins produced naturally by the bacteria. "The toxin gene is modified in all GMOs before the genetic construction – truncated, mutated, and thus it is never exactly the wild toxin," says Professor Séralini.[4]

The researchers say that more experiments are needed to determine how these effects on cells in the laboratory relate to actual people. Such studies are desperately needed. Recently medical researchers at Sherbrooke Hospital in Quebec found the Cry1Ab toxin in the bloodstream of 55 out of 69 pregnant and non-pregnant women they tested.[5] Eighty per cent of the fetal blood samples from the expectant mothers contained Cry1Ab. How did it get there? Neither the women tested nor their partners had been in direct contact with pesticides. The doctors state in their report: "Given the widespread use of GM foods in the local daily diet (soybeans, corn, potatoes), it is conceivable that the majority of the population is exposed through their daily diet … trace amounts of the Cry1Ab toxin were detected in the gastrointestinal contents of livestock fed on GM corn, raising concerns about this toxin in insect-resistant GM crops … there may be a high risk of exposure through consumption of contaminated meat."

The Quebec medical researchers also tested for glyphosate in the above-mentioned blood samples, but found none. The University of Caen researchers tested four Roundup formulations, and found they were all more toxic than glyphosate alone. This implicated various additives in

Roundup that have previously been claimed to be "inert." At least one of them, POEA, is not only toxic in itself, but also increases the toxicity of glyphosate in several ways.

GM foods have been on the market in Canada since 1995. While there have been earlier studies showing the potential for serious health effects, it has taken this long to start tracking down some of the mechanisms involved. Meanwhile our government agencies waltz the public around with studies that are too few, too short-term, based on sloppy assumptions and too often purveyed by the very merchants of these artificialized foods.

Resistant weeds and insects mean increased exposure to toxins

Weeds and crop-eating insects in fields of genetically modified crops are getting hammered with the same pesticides year after year. The result, since about 2005, has been fields choked with glyphosate-tolerant weeds, and the onslaught of a voracious Bt-resistant corn rootworm.

Many farmers have responded by using more and more Roundup, or adding more toxic herbicides such as 2,4-D. So much Roundup is being used that in 2011 the US Geological Survey reported that glyphosate can be found in rain and rivers in agricultural areas of the Mississippi River watershed, and even in the air where it is heavily used.

The response of the GMO industry has been to develop seeds with new and more implanted genes. Right now in Canada, corn seeds are available that contain two modified Bt genes, as well as the modified gene for Roundup tolerance. GM crops with tolerance to 2,4-D herbicide are said to be on the way.

Researchers at the University of Caen emphasize that multiple modifications in GM foods, and the substances they produce, interact with each other. The effects cannot be known unless they are studied in the same mixtures that occur in GM foods. The Caen team has already discovered interactions between the Bt toxins and Roundup, but for the most part, the ballooning mixtures in GM foods remain unstudied and their effects unknown.

♦

Anne Sherrod is a Director of the Valhalla Wilderness Society.

Footnotes

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Coastal Waters, Life & Us

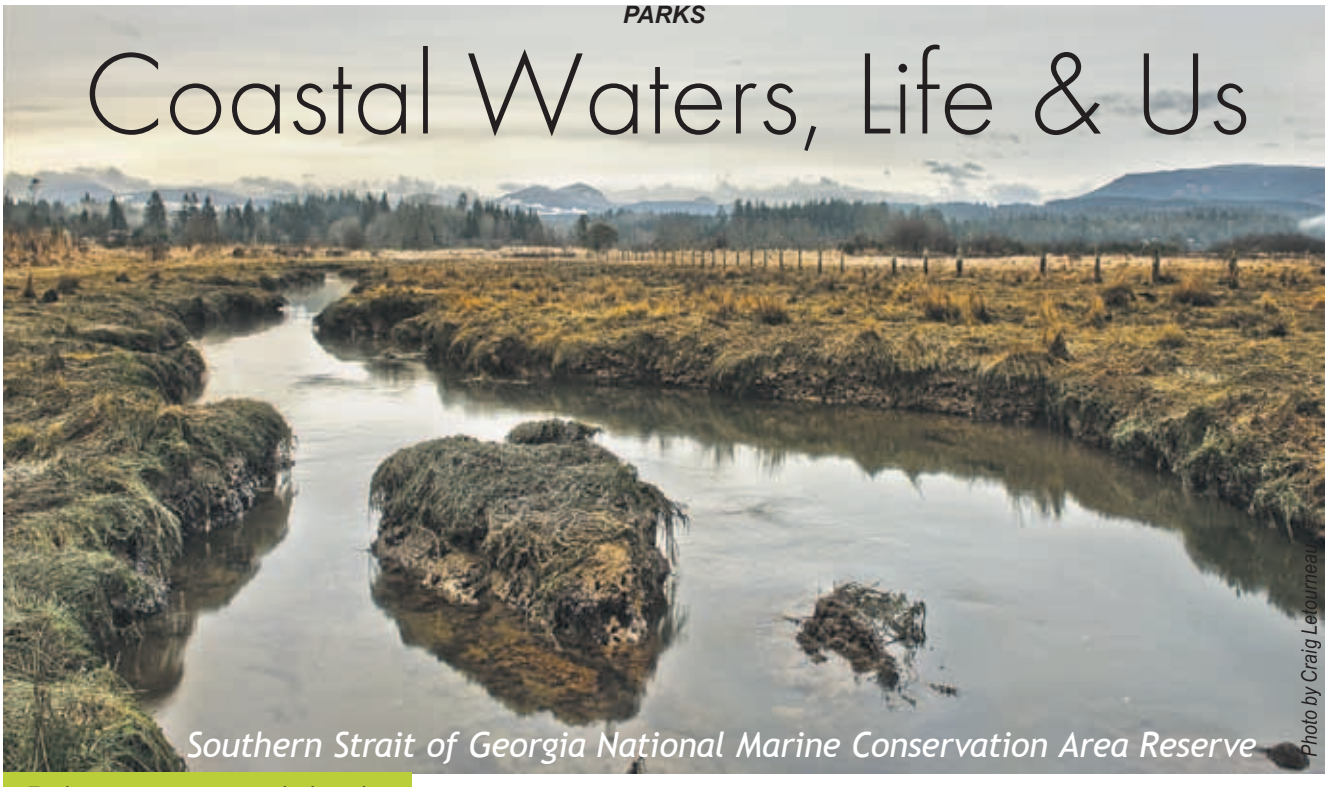

Photo by Craig Letourneau

Southern Strait of Georgia National Marine Conservation Area Reserve

Each generation is entitled to the interest on the natural capital, but the principal should be handed on unimpaired.

Canadian Conservation Commission, 1915.

by Laurie Gourlay

The great and hidden treasure that is the Nanaimo River and estuary, along with coastal waters wrapping around Gabriola Island, should be the northern boundary for the new Southern Strait of Georgia National Marine Conservation Area (NMCA) Reserve.

The goal of a NMCA reserve is to harmonize conservation practices with human activities – to create a flourishing habitat that supports a wide variety of fish and marine life, providing long term economic benefits while building healthier coastal communities.

At the first Rio "Earth Summit" in 1992, Canada was at the forefront of advancing Marine Protected Areas "from sea to sea to sea"; and in 1997 furthered its international leadership by being one of the first countries to pass a comprehensive Oceans Act. With only 0.5% of our oceans presently protected, however, there's still a fair way to go if we're to provide the promised boost to marine nurseries, re-stock our fisheries, nurture species and help restore our coastal communities to their former selves.

On Vancouver Island we have a chance to contribute to that recovery. An exceptional place on the planet, smack dab between three of BC's largest urban populations, perched on the Salish Sea and adjacent to the Pacific Ocean, the proposed Southern Strait of Georgia NMCA forms part of a complex and abundant archipelago, lapping at our shores, chock full of life.

Through thousands of years of teeming excess, from microbial biomass to orca mammal, this food chain was once so prolific you could walk across streams on the backs of salmon. Tidal flats and tidal pools, inter-tidal zones, island shores and sub tidal communities are home to crabs, urchins, star fish, sea anemones, lush kelp forests, seals and sea lions, porpoises, dolphins and killer whales. And of course eel grass and saltmarsh wetlands offer both sanctuary and nourishment to a vast range of resident colonies and migrating birds of the Pacific flyway.

In Nanaimo the industry, government and non-profit groups that formed the Estuary Working Group, concluded that "the estuary is one of the greatest natural assets in the region and it is important to ensure that this resource is protected to yield the best social and economic returns."

Designating the Southern Strait of Georgia National Marine Conservation Area Reserve has been slow, begun back in 2002. There was great enthusiasm when the federal and provincial Ministers of the Environment announced the proposed NMCA boundaries last fall. Unfortunately that proposal ended at the southern tip of Gabriola Island, just a few kilometres shy of Vancouver Island's largest, and some would argue, most important estuary.

The Ministers have since remarked that NMCA boundaries remain "fluid," and a campaign is calling for the inclusion of the coastal waters of Gabriola Island and the Nanaimo River estuary.

What might the return be, in dollars and cents, for designating a NMCA right here in the Harbour City of Nanaimo?

Last fall's local accounting by the Nanaimo & Area Land Trust took a baseline approach, noting that "the Nanaimo River estuary is "one of the highest-ranking estuaries in terms of fisheries resource value, productivity, and social and recreational value."

If we look at the ready-made ferry routes to Vancouver and Victoria, which just happen to go right through the proposed NMCA, we can see a substantial return from tourism. And let's not forget that, no matter how you might measure it, the recreational and educational opportunities for all ages, offer more than just the sum of their economic, social and ecological parts.

If we are to protect Vancouver Island's largest estuary, and Gabriola's coastal waters, the proposed "Southern Strait of Georgia National Marine Conservation Area" is by far our best and greatest option available. The NMCA brings all interests together, advancing a practical and proven marine reserve approach that has the backing of all levels of government and academia around the world.

The Salish Sea coastal shores and waters deserve the best management practices that a cross-disciplinary representation of government, industry, academia and local residents can provide.

This year is the promised deadline to declare local boundaries – and so it is up to us who live here to let our governments know if the southern Georgia Strait coastal waters are important enough to include in a National Marine Conservation Area.

Your interest and support are essential: *www.missimidisland.com*

♦

Laurie Gourlay has worked with environmental groups for thirty-odd years, and farms 20 acres organically on Vancouver Island with life-partner Jackie Moad.

Community Supported Fishing on the Michelle Rose

Guy Johnston and his family live in Cowichan Bay on Vancouver Island, about an hour north of Victoria.

Cowichan Bay is a pretty little village located on one of BC's richest marine estuaries. It is a leader among BC communities with ecologically sustainable initiatives. Cowichan Bay has protected its local heron population, become North America's first Cittaslow community ("Slow city" – Google it!), built the Cowichan Estuary Nature Centre (Visit it!), and in 2011 became home to Johnston's "community supported fishery."

Johnston has been fishing ever since high school, through his courtship with Michelle, and with Michelle beside him until their second child came along. This year Johnston's crew will be his son Sebastien, his daughter Rosalie, and Clay, the son of a family friend.

Fishing has changed drastically since Johnston started. No more high prices, even while climate change, fish farming, chemicals and mismanagement have depleted fish populations. Johnston says he was looking at a job in Walmart if something didn't change.

Enter the community supported agriculture model: local farmers growing for the local community. Sustainable, seasonal, and healthy beyond measure. Johnston adapted the idea for his own fishing business: if he could interest enough people in buying a share in the newly formed Michelle Rose Community Supported Fishery (CSF), he'd be set for the 2011 fishing season.

Johnston says "The triple bottom line explains it best. I want to be environmentally sustainable. I need to be economically sustainable. And I want my community to understand that fishermen can be sustainable and that smallboat fishermen need the support of their community to keep on operating."

How's that working so far? Three community meetings, some media coverage, and a lot of word-of-mouth later, Johnston found himself with 65 members, most from the Cowichan Valley. This year, he's hoping to have 100 members, including a few dozen from the Victoria area with possible delivery in Brentwood Bay as well as Cowichan Bay (in late June, August and November).

For a $300 share, members will receive about two-thirds of that value in prawns, a third in salmon, and can even get a $25 octopus share. The Michelle Rose CSF is an Ocean Wise partner. Prawns come mainly from the central coast and the southern Gulf of Georgia. Salmon comes from Johnstone Strait. This year, the Michelle Rose will be fishing out of Prince Rupert because of limited Fraser River runs. All of it is flash frozen on the Michelle Rose. Johnston says, "the only way to get it fresher than this is to eat it as it comes out of the sea." For more information, visit *www.michellerosecsf.com*.

—Arthur Caldicott

Beyond the Turista Curtain
In Mayan Territory

by Dawn Paley

All photos by Murray Bush, Flux Photo/Vancouver Media Co-op

From my perch in front of a small coffee shop in the town of Palenque, Chiapas, Mexico, I watched a steady flow of visitors walk from the bus station to the hotel district, in search of a place to lay down their heads – and their packs. They arrived in ones, twos and threes, metre-high backpacks hoisted up on their shoulders, extra hiking boots dangling from the sides.

As each of the travelers came trudging up the road, I wondered if they had arrived because of a rumour, or if it was for something else. After all, Palenque has long been an important stop on the tourist trail through southern Mexico and Guatemala, known for the stone ruins of the ancient Mayan city that lay seven kilometres outside of town.

But over the last year, according to Marcelo Hernandez, director of the Palenque National Park, the number of visitors to the archeological site has jumped from around 400,000 a year to upwards of 500,000.

Hérnandez thinks a large part of the jump in tourism stems from what he calls "curiosity" about the fact that the last annotation in the Mayan calendar is on December 22, 2012. "All that is a myth," he said, hesitating for a moment while choosing his words. "A kind of found opinion."

Even so, Hernandez, like many Mayans and archeologists, didn't dismiss the idea that the prognostications of the people who inhabited the ancient city of Palenque, and other Mayan cities, were important. "I think that we can better explain it as being about changes," he said. "Changes in our environment, in factors like climate change and other phenomenon that are occurring."

Although said calendar inscriptions aren't found at Palenque, it hasn't slowed the flow of visitors eager to get close to the massive historic site before the end of 2012. Every month, Palenque plays host to tens of thousands of Mexican tourists and foreign backpackers, many of whom have a special space in their towering packs reserved for a brick-sized *Lonely Planet* travel guide.

The town of Palenque is described in travel guides as a hum-drum place that is essentially just a "jumping off point" for tourists to visit the ruins. It only takes a short walk through the city centre to realize that it is actually a remarkably vibrant and lively place, where the sprawling local market thrives, despite the arrival of Walmart's local subsidiary and other chain stores. There is a distinct feeling that the tourists going through town contribute something to the economy, but that life for locals goes on, and isn't built around catering to foreigners. The tourist district features a well-conserved swath of jungle, replete with birds, bugs, lizards, and larger creatures like howler monkeys and Central American Agoutis, locally known as Tepezquintles.

On the sides of the roads in and out of town, pro-Zapatista graffiti graces road signs, a reminder that Palenque sits in the same jungle area made famous during the Indigenous uprisings of the l990s. Conflicts linked to highway expansion and national park creation have erupted repeatedly between Zapatista supporters, paramilitaries and state forces in the area.

Six years ago, Subcommandante Marcos visited Palenque with a Zapatista entourage.

"The big rich capitalists only use [the archeological site] to come visit as if it were from a culture that is already dead, as if the indigenous Mayas, some Zapatistas and some not, no longer existed or had died out with the triumph of neoliberalism in the world," he said during a speech in Palenque's central park. That said, apart from postcards featuring masked fighters for sale at the tourist shops, there's little evidence of the Zapatista movement in Palenque today.

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"Ruinas, Ruinas, Ruinas," calls out a man with a beckoning voice standing beside a line of kombis, or mini-vans. As the vans fill, they shuttle from Palenque town to the edge of the Mayan city nearby.

We arrived early to visit the ruins, as the spring sun is unbearable by mid-day. As we stepped out onto the grounds, a tour group stood back from the imposing Skull Temple, listening to their guide, while other workers chatted under the shade of a broad leafed tree, the sound of lawnmowers audible in the background.

Many of the buildings in Palenque, which reached its splendour between 600 and 750 AD, are as spectacular as anything on display in Rome. The palace was built over a span of 400 years, its massive columns and steep staircases leading to rooms where ancient murals are still visible. Other rooms feature carvings of nobility from nearby empires, and high walls include glyphs telling the history of the Palenque dynasty, which covered much of the present day Mexican states of Chiapas and Tabasco.

In all, the ancient site is just over two square kilometres in size. According to the National Institute of Archeology and History, it was home to 8,000 people at its peak, making it one of the most dense cities in Mesoamerica.

Palenque is located in one of the rainiest areas in modern Mexico, receiving an average of 10 feet of rain during the six month rainy season. Among the ruins are aqueducts, as well as the first known pressurized water system in the Americas. Not far from Palenque is the powerful Usumacinta River.

Only a tenth of the stone structures at Palenque have been cleared out of the dense rainforest. I meet two workers, using their machetes to clear new vines and growth overtaking the rock slab steps up to the cool, dark chamber that once held the remains of nobles. As they swished their machetes, they spoke to each other softly in Tzeltal, one of two Mayan languages still spoken in the area.

These men, like the other Mayans working in the archeological zone, were from one of two communities whose traditional lands are today included in the boundaries of a national park, preventing them from leading the land-based lifestyle of their people. Instead of planting corn and beans, tending to animals and using the forest for their own needs, members of these communities have found themselves working in the tourist trade.

On the trail that leads from the Palace to secondary buildings in Palenque, José Pérez sat selling small calendar figures, each depicting a month in the Mayan year. Pérez is from the community of El Naranjo, which is inside the National Park. He said that few of the half million tourists who visit the ruins make it to his community, which numbers about 1,000, and is a three hour walk from the ancient city.

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Contrary to popular belief, backpackers tend to be on a tight schedule. The stop off at Palenque is part of a route between Guatemala's Tikal, the largest of all ancient Maya cities, and the colonial city of San Cristobal in Chiapas. Some might spend a day at the Aguas Azules waterfall. This is another park mired in controversy, as families living inside the park (some, in this case, allied with the Zapatistas) search for ways to survive on lands that are subject to strictly enforced environmental laws forbidding them to plant and harvest. But for many tourists, this region is a two day affair, at most, and it's entirely possible to leave thinking that nature is being protected, and that modern Mayans exist in an easy harmony with their surroundings.

Anyone who has done a little background reading (other than the Lonely Planet), however, knows that that's simply not the case. In order to learn more about what is happening in this resource-rich area, I took another

Continued on Page 34 ⇨

⇦*Turista continued*

route, along the Mexican border road that follows the Usumacinta. It sure didn't take long to get off the tourist trail.

Just a couple of hours outside Palenque, on a road that leads to three more archeological sites, Piedras Negras, Yaxchilan, and Bonampak, the kombi I was traveling in was searched three times at three separate army checkpoints. At one of the stops, as a soldier barked at passengers demanding our identification, I noticed a crudely made sign indicating that the army was working to protect tourists. More likely, the army was looking for Central American migrants or drug traffickers, either to turn them in or to extort money from them in return for safe passage. After each checkpoint, we would be on our way again, continuing along the country road in sweltering heat, surrounded by dense forests, interrupted now and again by stark clear cuts.

Near the Mexican town of Benemerito Las Americas, I visited a village on the other side of the river, in Guatemala. I was there to meet with Agustin Tebalam, an organizer with the Peten Front in Defense of the Usumacinta Basin. The Frente Petenero, as they're called locally, formed to prevent the construction of five proposed dams along a river as powerful and rich as BC's Fraser. A short distance from the shady spot I spoke with Tebelam, families washed their clothes and kids played on a collection of rocks sticking up out of the clear blue water.

"If they succeed in building these dams, there will be nothing left of our communities, they will be completely submerged," said Tebalam, whose house is a few hundred metres from the river's edge in the cooperative of Los Laureles in Peten, Guatemala. "The threat is huge."

The dams would also mean flooding out Piedras Negras, another

ancient Mayan city on the edge of the river.

Life along the Usumacinta isn't easy: every year, the river swells up and spreads outwards by kilometres, flooding local communities. One local priest told me that until the water levels reach above peoples' knees in the street, life goes on as usual. But according to Tebalam, dams would permanently flood their homes. Locals not only bathe and wash in the river, they use it for drinking water, for fishing, and for sand used in building. Tebalam estimates at least 35,000 people would be displaced by the proposed dams, which, if built, will be operated jointly by Mexico and Guatemala.

Tebalam is one of a group of community leaders planning a referendum to pre-empt the construction of these dams, which will take place at the end of April.

On the gravel roads that connect the village of Los Laureles to other communities on the Guatemalan side of the river, hand painted signs display anti-dam messages. These days activists regularly make the five hour bus ride into Flores, the capital of Peten, as they prepare for the municipal-level vote on new dams in the area.

It's not just the distances between communities that make organizing here difficult.

"The army is constantly around, the police control everything, including the movement of each of the communities, what's happening in our communities," said Tebalam. "It's almost the same as before," he said, referring to what life was like here during Guatemala's 36-year internal armed conflict, which ended in 1996. Over 200,000 people were killed during the war, and there are over 50,000 disappeared. The United Nations later determined that genocide took place in Guatemala over this period, as the majority of victims were civilians of indigenous descent.

The risks activists take in speaking out in such a militarized region are huge. In February of 2011, Ramiro Chon was shot in the back eight times as he entered a health clinic in the municipality of Sayaxché, in northern Guatemala. Chon was a community organizer, active around community health, who, according to an obituary, "participated in analysis and discussion of the effects of the depredation of natural resources, the installation of dams, and oil extraction."

Considering ancient archeological sites in the context of modern day mega projects is certainly outside the scope of tourist publications and travel guides, which tend to emphasize a detailed reading of the past while denominating present day conflicts as "no go" zones for travellers. But only by connecting the past and the present in Mesoamerica will we be able to stand together with those who are defending their land, their history, and their future.

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Wild Times

Growing Island Parks

Joe Foy

by Joe Foy

"Wanna buy a t-shirt?" I turned to look across the coffee shop table at a fellow holding a bright red shirt with the outline of a maple leaf with the words Another Radical Canadian bodly emblazoned across the shirt's front.

He told me that the t-shirt was his reaction to federal Natural Resources Minister Joe Oliver's proclamation in January that environmental and other "radical groups" are trying to block trade and undermine Canada's economy. What had got Oliver steamed was the widespread and growing opposition to Canada's dirty tar sands and the proposed Enbridge and Kinder Morgan pipeline projects which aim to bring the polluting product through BC to the Pacific Ocean so crude oil tankers bound for China can fill 'er up.

Here on Vancouver Island, where I was touring around meeting various community environmental groups, the spectre of a tar sands oil spill on Canada's wild left coast meant that the red t-shirts could scarcely be printed fast enough as people snapped them up.

They say it's darkest before the dawn – and these are certainly dark days for Canada's environment and those who stand on nature's side. Just holding the thin green line is tougher than ever as Mr. Oliver huffs and puffs about eco-radicals picking on the multinational mega-industries of Canada.

In BC, besides the tar sands pipeline proposals there are other nasty projects planned like the so-called New Prosperity Mine which threatens to drown Little Fish Lake under a massive tailings pond, then risks killing off Fish Lake located just downstream. Further north is the grossly expensive and damaging proposed Site C Dam Project on the Peace River.

On Vancouver Island citizen activists are upholding their reputation as outspoken defenders of the wild. People have banded together in Port Alberni to prevent their drinking water supply area from being logged. The mid-Island is a hotbed of opposition to the proposed Raven Coal Mine which risks fouling the famous oyster beds of Vancouver Island's Baynes Sound. Activists in Qualicum Beach and Parksville are fighting a tree-by-tree battle to hold the last remnants of the Coastal Douglas fir forest.

A huge new salmon farm proposed for Clayoquot Sound, would increase the risk of a disease outbreak amongst our already endangered wild salmon runs. It has kindled a ton of opposition in Tofino and surroundings. And of course there is the proposed Catface open pit copper mine in the heart of Clayoquot Sound, a prospect too terrible to contemplate.

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With all of these defensive actions taking place you would think that people would be in no position to advance on behalf of Mother Nature – but that is exactly what is happening on Vancouver Island.

I had wanted to see what local activists were doing on the Island to expand the protected areas system and boy was I pleasantly surprised! People all over Vancouver Island have banded together to beaver away at gaining new protected areas in their region.

On the west coast around Tofino the Tla-o-qui-aht First Nation has declared several spectacular areas – Meares Island and the Kennedy River watershed – as Tribal Parks. The Friends of Clayoquot Sound continue to work for a wide swath of new protected areas, and an end to old growth logging in the region.

But it wasn't just in Clayoquot Sound that people are working for a wilder future. Lower East Creek on the northwest coast of the Island still has tall timber and ancient forests and advocates who say this place cries out for protection. The wild west coast of Nootka Island has its defenders too as do special wild areas all over the Island.

It's time that Vancouver Island gains the same high percentage of protected areas as is found in other well-known nature destinations such as New Zealand and Costa Rica. We all know it should be done, and that there are people who have done much of the hard work. Let's all work together to make it happen!

♦

Joe Foy is Campaign Director for the Wilderness Committee, Canada's largest citizen-funded membership-based wilderness preservation organization.

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