

CONCRETE GARDEN

SUSTAINABLE // URBAN // AGRICULTURE

SPRING/SUMMER • 2016



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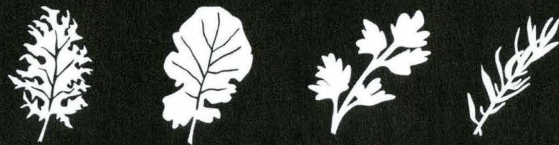
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DECOLONIZING AGRICULTURE AND FOOD
COMMUNITIES THROUGHOUT OUR WORK.
WE HUMBL Y ACKNOWLEDGE THIS MAGAZINE
IS PRODUCED ON THE UNCEDED TERRITORIES
OF THE COAST SALISH - THE LEKWUNGEN AND
WSÁNEĆ PEOPLES.

COVER BY SAMANTHA WEY

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PHOTO CREDIT: ALIFIA KAPASI

LETTER FROM THE EDITOR

IT'S A NEW YEAR, BUT THE NEWS IN 2016 HASN'T BECOME ANY LESS daunting. Still, there are small things we can do that make a big difference. For this reason, I'm excited to introduce two new sections to the magazine that highlight the possibilities for a better world. Our Apartment Agriculture section shows how readers are working with small spaces to grow their own food. If their DIY solutions inspire you, send us your own results and we might put you in a future issue. Meanwhile, the Urban Pollinator section profiles a local person doing something to improve food security. For our first Pollinator, I'm pleased to feature Katrina Dwulit of the Esquimalt Farmers' Market.

Our own small city is also trying to make a big difference. Our story "Better Off FED" shows how Victoria's new Food Eco District is creating healthier neighbourhoods by helping local small businesses work together. We still have to deal with big issues, though, such as last year's drought and the ongoing water crisis in California, which affects our own food chain and grocery prices. In "California, Here We Come," Robert Morris looks at the monumental drought south of the border through the eyes of B.C. growers and shop owners and asks what steps our province is taking to protect our water supply and avoid similar problems.

Few things are harder to understand than the global food industry. In "Trace-a-What?," Diandra Oliver gets to the bottom of where our food comes from by looking at the practice of "traceability"—and the new technologies that help consumers track their dinner. She finds small-scale producers are pushing ahead while government regulation needs to catch up if we hope to create an alternative food system in which we can know the people who make our food.

Yes, there are a lot of progressive initiatives happening around food and sustainability in Greater Victoria. But we should remember to look outside our region to discover how others are solving shared problems. Over the winter, Senior Editor Sarah Hughes travelled through Europe, where she interviewed innovators in Bristol and Dublin about their agricultural projects—including urban goat farming and futuristic grow domes—for her inspiring report from the road in "Urban Food Odyssey."

At the magazine, we're proud to do our small bit by writing about important issues from a solutions-focused perspective. And we love to hear from readers who have been inspired to make a change for their communities. If you enjoy reading *Concrete Garden*, do your own small thing to join the local food movement by becoming a subscriber. Together we can all make a big difference.

— QUINN MACDONALD



Summer Workshops

HAVE YOU EVER THOUGHT ABOUT GARDENING BUT THEN worried that going organic was too expensive, or too complicated, or just not worth it? In Victoria, the solutions to these concerns can be found in a building so small it's easy to mistake for a garden shed. The Compost Education Centre houses pamphlets, tons of seeds, and four employees eager to answer your every question.

Located amongst the brightly coloured telephone poles and houses of Fernwood, the Compost Education Centre sits on a small plot of land covered in plant beds. Here, community members participate in workshops on topics ranging from composting basics to pruning to aquaponics. Most are geared toward beginners.

"It's still important for people who live among concrete to know how to dig in the dirt," says site manager Alysha Punnett, who has certificates from Royal Roads University and Gaia College in environmental management, permaculture, and organic gardening, "and to have a connection with nature, whether that's gardening or going for a walk among trees."

Punnett left the Okanagan to pursue a more sustainable lifestyle. She teaches the centre's free composting basics workshops, which provide participants with the recipe for nutrient-rich organic soil. Attendees learn to alternate between high-nitrogen greens (such as fruit and veggie scraps, grass clippings, and animal manure) and high-carbon browns (shredded newspaper, fallen leaves, sawdust), as well as the importance of aeration, moisture content, and surface area.

The centre's workshops are priced according to membership status. For a small fee, members are entitled to attend two \$20 workshops per year for free, with a \$5 discount on additional workshops.

The centre will offer workshops on Creating an Herbal First Aid Kit and Canning Your Harvest. Rebecca Singer, a medical herbalist, teaches how to identify medicinal plants can be used for treating cuts, bruises, and stings. Participants will leave with the products made in the workshop. (June 11 at 2 p.m., \$45.)

In the other workshop, avid canner Lindsay Kearns will teach

the basics of home canning, as well as safety guidelines and the necessary equipment. Everyone will go home with a half-pint of pickled roasted peppers, plus the secret recipe. (June 18 at 2 p.m., \$20.)

The centre is home to more than just workshops. It offers community members a hotline to access compost support at 250-386-WORM (9676). On May 7 and Aug. 27, the centre will host organic plant sales, supplied by local organic growers and featuring food and music.

Whether you want to go all out and replace your lawn with raised beds, or just want to grow a better tomato, the Compost Education Centre is there to help. Community members may come and stop by and chat with employees. Punnett loves talking shop with aspiring gardeners.

"I find gardeners are all pretty nerdy and passionate about what they're into—and so am I," she says. "There's no one right way to go about doing a lot of this stuff, so it's awesome to have a conversation with people about what they're doing, what works for them, and try to answer their questions with my own experience."

— ARIANNA CHEVELDAVE

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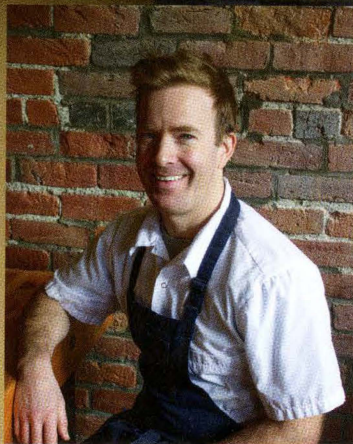
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PHOTO CREDIT: ALIFIA KAPASI



JAMIE CUMMINS OF RELISH
FOOD AND COFFEE
920 PANDORA AVE, VICTORIA

THE AVERAGE VICTORIAN IS WELL versed in the art of brunch, but Jamie Cummins, the chef and owner of Relish Food and Coffee, offers unique and award-winning choices on his menu. Relish took home *Eat Magazine's* Best Dish of the Year in 2013 for its crispy smoked chicken with *nước chấm*, and again in 2015 for spicy meatballs served on rice cakes

with Korean chilli sauce. As you savour flavours like sesame, chillies, and kimchi, next to basic eggs and toast, you might not guess that Cummins is a born-and-bred Victorian.

While he didn't always want to cook, Cummins harboured a love for food from a young age. "My parents always cooked from home," he says. "My mom made bread from scratch with ground flour, and my dad had a garden."

He took a greater interest in food after moving out and began cooking professionally at Rebar at age 25. He followed this up with a short stint at Mo:Lé, then moved to attend the Northwest Culinary Academy of Vancouver. He spent significant time at the Sooke Harbour House before starting Relish in 2010.

After working late nights and weekends for nearly a decade, Cummins was won over by the temptation of cooking early mornings. "Originally, there was no coffee shop in the neighbourhood," he says. "I thought I could operate as a coffee shop in the morning and do some simple cooking for lunch."

Relish fans appreciate that Cummins tries to make nearly everything in-house. He enjoys the challenges of producing his own bacon, sausage, and bread.

"I'm buying pork from Johnston's or Sloping Hill, so I know exactly how those pigs are raised and what's going on," he says. "I can feel proud about serving people that." He mirrors this quality control with his produce, which he mostly buys from Saanich Organics and the nearby Mason Street City Farm.

Next to the standard bacon and eggs, patrons are likely to see kimchi scrambles, katsu chicken, and variations of congee (or breakfast rice porridge) on the menu. "When I eat out, I would rather eat Korean, or Chinese, or Japanese," he admits. "I've always grown up that way in Victoria."

Even as the menu changes daily, Cummins plans to improve Relish. In the coming year, he is considering opening for evenings, weekends, or both. "It's a hard decision to make because I have a baby, too, and I would rather be hanging out with [my family]," says Cummins.

Regardless, Relish will continue to be a staple in the local food community as Cummins feels strongly about where his products come from. "I want to serve something with integrity," he says. "I want to feel proud of what I'm doing and look my customers in the eyes when they say, 'That was good'—and I can know they ate good food."

— ADRIAN PARADIS



relish

food and coffee

Radish and Garlic Scape Kimchi

Eat this kimchi with everything. It's great with eggs, seafood, and meat—or just with rice.

Ingredients:

- 12 radishes quartered
- Radish tops chopped
- 4 garlic scapes cut into one-inch pieces
- 6 green onions chopped
- 1 two-inch piece of ginger
- 1/4 piece carrot julienned
- 1 tbsp. salt
- 3 tbsp. plus 1 tbsp. sugar
- 3 tbsp. fish sauce
- 3 tbsp. Usukuchi (light coloured soy sauce)
- 1/4 cup kochukaru (Korean red chilli flakes)

Preparation:

- Toss the radish tops, quarters, garlic scapes, green onions and carrot with 1 tbsp. salt and 1 tbsp. sugar. With your hand gently massage and set aside for two hours or overnight in the fridge
- Mince ginger and mix with fish sauce, remaining sugar, Usukuchi, and kochukaru
- Drain liquid from vegetables and mix all together. Put into a glass jar, cover, and refrigerate
- Can be eaten fresh, gets better around week two



PHOTO CREDIT: VANESSA PATTISON



PHOTO CREDIT: DEAN KALYAN STUDIOS

WHO: KATRINA DWUILT

WHAT: ESQUIMALT'S NEWFOUND MARKET MADNESS

GREAT MOVEMENTS SOMETIMES HAVE HUMBLE BEGINNINGS. The origins of the new Esquimalt Farmers' Market, for instance, can be chalked up to an excess of raspberries. "I had lots of them," says Katrina Dwuilt, the organizer, which ran its first season in 2015. "All the neighbours got lots of raspberries."

Once Dwuilt ran out of neighbours, she contacted the Township of Esquimalt to see if she could run a farm stand on her front yard to sell the remainders. In order to sell the berries, Dwuilt would have had to change a city bylaw. She figured it would be easier to just start a new market.

While Victoria is saturated with farmers' markets, the craze never caught on in Esquimalt, where Dwuilt moved in 2009. A previous attempt didn't last long, and Dwuilt noticed how she and other locals would often cross the bridge to attend markets in the city. Being an avid backyard gardener and pickler, she often talked about starting one with friends. She spoke with the Esquimalt Recreation Centre about using their space, and, equipped with her neighbourhood's support and her grandmother's pickle recipe, she was off.

"The first market saw about 1,000 people," she says, explaining how the managers of the Moss Street and Oaklands Sunset markets attended the opening. There was so much demand that organizers extended the season three weeks. "There's never enough farmers' markets until you can buy all of your food locally."

The Esquimalt market, which operates Thursday evenings, also offers a number of free vendor spaces to local farmers. "These are real people that work all day long to make this food for you,"

says Dwuilt, "then come and sell it at the market that night."

Despite its humble origins, the Esquimalt market aims to be a model of sustainability. Dwuilt wants to make it a completely compostable event starting this year, when she will push for a ban on Styrofoam and plastic bags. "We are open to the fact that there will be challenges," she says. "We want to be supportive to our vendors and make sure that the understanding is that we are doing this for the big picture." In the future, Dwuilt hopes to power music systems and vendors via solar energy.

The market has created its own local currency—Market Bucks. Last year, local businesses sponsored the market each week by donating \$50 for these bucks. The notes were then donated to community organizations such as the Rainbow Kitchen, which provides hot meals to those in need, and the Esquimalt Neighbourhood House Society, which gives care and aid to those in the community. Local urban gardeners can also vend their backyard labours at the community table or donate the food for the market to sell.

While Esquimalt had a spotty past record of farmers' markets, Dwuilt's efforts seem to have stuck. She chalks this up in part to the power of Facebook and other social media to spread the word throughout the community and connect citizens and growers committed to sustainable living.

"This year, we feel that we have created a very desirable market for both vendors and shoppers," she says. "We want to only be part of the solution and not part of the problem."

— ADRIAN PARADIS

SHIRLEY AND JORDAN RIVER



JUST OVER AN HOUR DRIVE WESTWARD FROM DOWNTOWN Victoria, and a little past Sooke, you will find the wildly beautiful and seemingly remote communities of Shirley and Jordan River. The coastal area has long been a destination for nature and surf enthusiasts as it stands at the gateway of both the Juan de Fuca Provincial Park and the Pacific Rim National Park Reserve, a vast stretch of epic beaches and preserved wilderness. These easy-to-miss townships are fast becoming a destination, too, for lovers of locally crafted food and drink—and anyone interested in a tasty adventure.

SHERINGHAM DISTILLERY

SHIRLEY WAS ONCE CALLED SHERINGHAM, BUT THE postmaster said the name was too long for the postage stamp and demanded it be shortened. Every aspect of Sheringham Distillery's products, from labels to recipes, has a story that connects to place and history. Husband and wife team Alayne and Jason MacIsaac channel their skills and passion for the culinary arts into the finer details of their well-crafted spirits. They use grains sourced exclusively from B.C., including Canadian heritage variety Red Fife, as well as locally sourced, certified organic botanicals. The three-still operation produces vodka, Seaside Gin, and William's White Whisky, now available in over 30 liquor stores and restaurants. But don't short-change your experience. The stories that go with the flavours make it worth the trip to the distillery for a tasting.



POINT NO POINT RESORT

LOCATED ON 40 ACRES OF UNDEVELOPED LAND OVERLOOKING the windswept beaches along the Strait of Juan de Fuca, Point No Point Resort has been a hidden getaway for over 60 years. At the restaurant, which began serving dinner in 1992, chef Jason Nienaber works with local food suppliers, such as ALM Organic Farm, mushroom pickers, wild-crafters, and other locals who stop by with the occasional harvest of greens and herbs, to create gourmet meals with coastal flare. The dining room may boast the best view on the coast. How many other restaurants set their tables with pairs of binoculars?



COLD SHOULDER CAFE

THE COLD SHOULDER CAFE IN JORDAN RIVER SERVES a great cup of coffee by local Sooke roaster, Stick in the Mud. Josh Constandinou and his wife Christine Whinsby, who does the baking, have been kept busy since they opened a year and a half ago. Across the road is a popular surf break throughout the winter; summertime brings an increasing number of tourists as road improvements between Port Renfrew and Cowichan opened up a 3.5-hour scenic drive known as the Pacific Marine Circle Route. Cold Shoulder is a worthy last stop before you hit the Juan de Fuca Marine Trail, continue on to Port Renfrew, or shimmy into your neoprene for a day riding the waves.



PHOTO CREDIT: TRINA MCDONALD

SHIRLEY DELICIOUS

IN 2013, PHIL DU PREEZ AND HIS BUSINESS PARTNER SHEENA Mercer signed the lease on a roadside building in Shirley that was begging to become a restaurant. Since day one, the owners of Shirley Delicious Cafe have been fulfilling their mission to provide a coffee experience of urban quality in a gorgeous rural environment. Du Preez, Mercer, and their baker Lou Ellis, all from Salt Spring Island, offer high-quality and small-batch homemade foods, using organic and locally sourced products, such as Fernwood Coffee and JagaSilk tea. The portions are hearty, the music is always playing, and 362 days of the year, the warm welcome makes a great beginning or ending to an outdoor adventure.

— TRINA MCDONALD





PHOTO CREDIT: ALIFIA KAPASI

The BIRDS and the BEEES

Picking up cute chicks for summer has never been so easy

BY HEATHER NEALE FURNEAUX

IT WILL COME AS NO SURPRISE TO ANYONE WHO'S EVER BEEN A parent that my three-year-old daughter wants a pet. Malia's not the first child under the age of 10 to bat her big adorable eyes at mom and dad, hands squeezed in prayer position over the prospect of receiving a soft, furry friend for Christmas, Easter, or any upcoming holiday that involves a gift. But my husband, Jeff, swears he is allergic to cat poo, dog poo, and early morning walks, so her efforts up to now have proven fruitless. Until we heard about Kate and Mike Fraser's Bees Please Farms.

WHY DID THE CHICKEN CROSS THE ROAD? BECAUSE HER COOP WAS TRANSPORTED TO OUR BACK YARD FOR THE SUMMER AND SHE CRAVED A BACK-PATIO DRINK.

In early February, when tulip and daffodil stems popped up in my yard like children playing hide and seek, I started to research new vegetables to plant and ideas for how to make our garden yield even more food than last year. Chickens seemed like a great addition, considering Jeff's morning omelette alone consists of at least six eggs.

WHY DID THE CHICKEN CROSS THE ROAD? BECAUSE WE WERE GOING BROKE BUYING EGGS AT THE SUPERMARKET.

We looked into it. Bees Please offers chicken and bee rentals through the spring and summer. They hand over the birds in May, complete with food, shelter, and the whole chicken caboodle, and then take them back come October. "We provide everything so families can just enjoy the hens and the eggs without the nonsense of having to build the coop themselves and that sort of thing," says Kate.

For a rate of \$425 for the season, renters receive two hens, up to two dozen eggs a week from those chickens, depending on supply, a transportable coop that can be easily moved around the yard, food and water dishes, chicken feed, and a copy of *Fresh Daily Eggs* by Lisa Steele, which covers everything you need to know about caring for fowl friends. I loved the sound of the arrangement. Malia gets the pets she always wanted, we get fresh eggs, and there's the option of giving the chickens back in the fall when school, dance, and swimming lessons restart.

WHY DID THE CHICKEN CROSS THE ROAD? BECAUSE SHE SPOTTED MY THREE-YEAR-OLD APPROACHING HER WITH A DOLL'S DRESS AND NAIL POLISH.

The Frasers started out gardening a few years ago with similar interests to mine—to get outside and stick their hands in the dirt for the sheer enjoyment of it, to find ways to ensure their dinner plates were filled with pesticide-free food, and to teach their children about food security. After that first year, growing

became a full time passion—one they managed on top of kids and day jobs. Last year alone, they grew so many different edibles they had to rent a garden plot in another part of the city.

WHY DID THE CHICKEN CROSS THE ROAD? BECAUSE SHE COULDN'T SEE HER FRIENDS THROUGH THE FLOWERS AND THE BEES.

"We started out with bees and wanting to help other people support bees. But beekeeping is hard to learn—it's 10 times harder than having a puppy," says Kate. She joined the Capital Region Beekeepers' Association to pick up tips. That's how she learned about checking for disease and harvesting honey.

"Bee mortality rates are at 30 per cent in the province," she says. "So that means, if you have 100 hives, you'll lose 30 each year to disease, poor wintering, or lack of foraging." This dramatic statistic is, in part, what prompted her and Mike to rent out the hives: they sought to raise awareness of the importance of bees and promote population growth.

They discovered that domestic animal husbandry also has a steep learning curve. "We had our first hen for over 11 months before she produced a single egg," says Kate, explaining how crucial it became to know which kinds of hens laid eggs year round, which ones responded well to artificial light during the winter, and what colour eggs came from which birds. That's when they decided a rent-a-coop business would be ideal for city dwellers who wanted the experience but didn't have the time to invest in learning the ins and outs. Their chicken collection has now swelled to 52.

Kate and Mike were wrapping their heads around how the money would work in their business when Kate's mom called. She'd heard about Kamloops's Rent The Chicken location on CFAX. The Frasers contacted the Pittsburgh-based company, which deals exclusively in poultry-for-eggs, and became one of their affiliates. Then they reached out to nearby associates that were already up and running.

"The Vancouver affiliate was extremely helpful," says Kate. "They answered so many of our questions and were happy to share their experiences." Rent The Chicken's well-established business model combined with this close-to-home practical support helped the Victoria-based duo feel confident about moving forward.

They also invested in bees—lots of them—excited by the prospect of offering both services. And the chicken revenue would help keep the drones flying. "With bees, you make nothing at all in the first two years of rentals, whereas chickens yield a small profit," she says.

Kate got into the business to help bees, so she feels strongly about feeding the bees their own rich organic honey through the winter to strengthen their health rather than opting for sugar



water like some “beeks” (beekeepers) do to cut down costs. “That first summer, they may not produce more than about 90 pounds of honey. So after we give the renters their four jars as promised, that doesn’t leave a lot for us to feed them with through the winter.” In the future, the Frasers can split colonies to double up on production. But in the beginning that’s not an option. “Eventually we will break even, and one day profit,” says Kate. “But we’re not doing this to become rich. We just want to help the bees as much as we can.”

Is there a demand for coop and hive rentals on the Island? Absolutely. In fact, Bees Please’s bee waitlist is buzzing. “We’re full until the summer of 2018 already,” says Kate. And the chicken renters are also excited. Planning a move from Vancouver to Victoria this spring, future renter Janine Slevinsky and her family have already reserved some birds for their new, larger yard.

“I’ve wanted chickens for ages, ever since I found out about the program,” she says in a phone interview. “I’ve had all kinds of pets over the years but never birds.” Slevinsky joined several Victoria Facebook mommy forums this year to make friends in her new community. That’s where she learned about the rented pet poultry opportunity. “It just seemed like such a great way to dip your toe into chicken husbandry.”



KATE AND MIKE'S SON, ORION

Local resident Emilie Shaneman read about the venture in the *Times Colonist* and went online to find out more. “It’s such a fun idea,” she says, “to have cute little chickens running around the backyard—to be a small urban farmer.” She admits the best part is that if it doesn’t turn out to be something she loves doing, she can give them back.

“We had a few guinea pigs in the past that sort of just went away after a little while,” she jokes, explaining she had to give them back to the SPCA as the animals were too much work at that time. “But this seems doable, and I have a friend with chickens who says it’s easy peasy.” Shaneman wants bees, too, but will wait a few years until they become available.

WHY DIDN'T THE CHICKEN CROSS THE ROAD? BECAUSE SHE WAS ONLY ALLOWED IN CERTAIN MUNICIPALITIES.

I’m convinced. This sounds great. But before I sign on the dotted line, I want to ensure there are no issues with housing chickens in Saanich, where we live. We have a few rule-bound neighbours with dialling fingers ready to report bylaw breaches. It turns out residents are allowed up to five chickens, provided the animals are owned, not rented.

The Frasers get around this bylaw by “selling” the birds to interested families and then “buying” them back at the end of the season for a dollar. Sidney is the only municipality in Greater Victoria that disallows chickens entirely. And Victoria has no limit for the number of chickens a household can have; they must be kept exclusively for eggs, not consumption. It looks like we’re in the clear; now I just have to convince my husband to go for the idea.

WHY DID THE HUSBAND CROSS THE ROAD? TO GET AWAY FROM THE CHICKENS.

Malia and I have brainstormed lists of chicken names. So far Perky is at the top of our list, followed by Pokey as a close second. It’s anyone’s guess how this undertaking will go for us. These days, with a three-year-old and a one-year-old at home, it’s a wonder I can even reach the backyard at all through Egyptian-scale laundry pyramids and brightly coloured building blocks strategically placed around the house to break ankles. But the chaos of my home is even more reason to get outside of it and delight in my daughter’s sense of wonder at holding and feeding her pets. I daydream about expanding into bees after we’ve had the chickens for a while only to realize, I’m getting ahead of myself again—counting my chickens before they... yep, you guessed it, hatched.

WHY DID THE MOTHER CROSS THE YARD? BECAUSE PERKY WAS THIRSTY AND THE LAUNDRY WOULD WAIT.

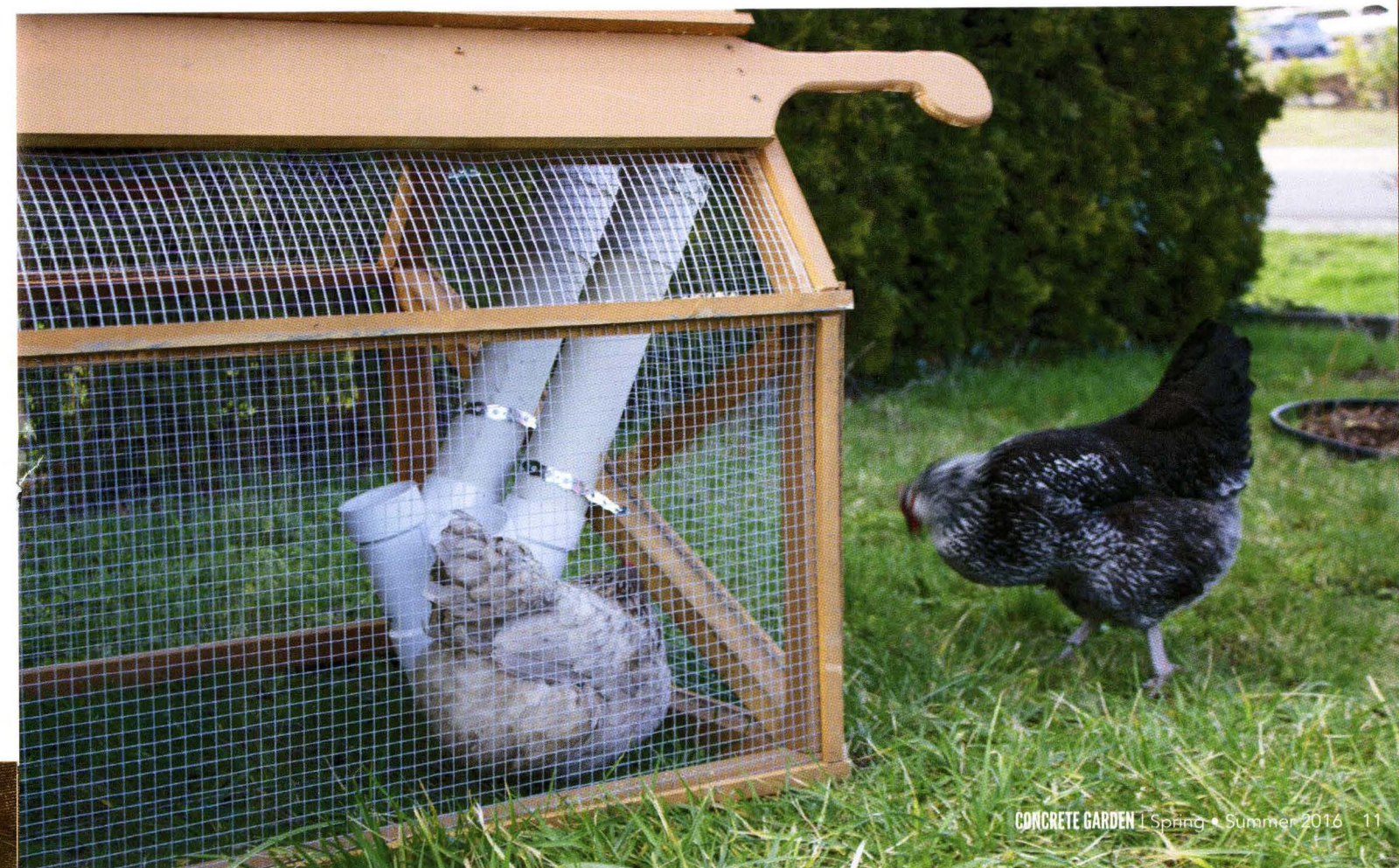
On an unseasonably warm late winter afternoon, our family of four heads down Victoria’s Galloping Goose Trail for a leisurely bike ride. Baby Audrey is in a chariot, bumping along behind Jeff, and Malia rides “shotgun” in a child-safe contraption secured onto the front of my handlebars. As we wind our way through quilts of suburban farmland in the direction of Mitchell’s Farm, I inhale the scent of morning

air laced with a hint of manure and think about the chickens we’ll soon acquire. Just then, we pass a yard with a couple of pigs lazing in the shade and a smattering of hens and roosters strutting nearby. They peck at the ground.

“That’s chickens like I’m getting mama!” Malia shrieks, her eyes as huge as hard-boiled eggs. We haven’t even received our new friends yet and she’s already elated. A few weeks back, we visited a colleague of mine who lives on a small property in View Royal with five chickens. Talking to her and her two daughters, hearing how enamoured they have become with their little chicks, I know we are likely “doomed” to keep our rental chickens forever.

WHY DID THE COMMITMENT-CHICKEN CROSS THE ROAD? TO FIND THE HOUSE SHE WOULD CALL “HOME.”

Luckily, Kate and Mike Fraser have devised an adoption process. We’re signed up, we’ve got names, we’ve selected a special spot in our yard for the chicken coop, and we’ve even admitted that we’ll probably need a few chicks for baby Audrey, too, in a year or so when she’s old enough to understand. It’s anybody’s guess how many birds we’ll end up with in time. But we welcome the “bird-brained” idea and happily accept the challenge of caring for them. Malia will finally have her pets, and she won’t have to resort to batting her eyelashes anymore. That is, until it’s time to order bees.



Urban Food Odyssey

A trip to the U.K. and Ireland reveals
innovations in urban agriculture

BY SARAH HUGHES



LYNNE DAVIS MET ME AT ROLL FOR THE SOUL, A BIKE CAFÉ IN the heart of Bristol, England. I ran in dishevelled after pedalling 20 minutes through a U.K. drizzle. The young software developer-turned-farmer greeted me with a wry smile and jumped right into the story of her brainchild, Street Goat. The “animal share initiative” aims to benefit the community by keeping goats in empty urban lots for dairy production, while offering neighbours the chance to care for livestock in the city.

“A lot of people think of farming as a black box, like car mechanics,” says Davis. “They don’t want to touch it and don’t have a chance to try it. This project gives them a chance to try it and learn.”

Six farmers, builders, and permaculturalists form the core of Street Goat and will start with milking two goats. If the trial succeeds, Street Goat’s founders will grow the operation so more community members can take part and share the costs of care and health—and reap the awards of milking the cloven-hooved friends. They had already raised more than £9,000 (C\$17,000) in a crowdfunding campaign toward buying their first goats.

Not everyone gets their goat goals. A fear-mongering neighbour who rallied against a “proposed 100-goat goat farm” in the city lost the team their first site, even though Street Goat wasn’t considering four goats, let alone 100. Luckily, they found another, more suitable lot.

Female kids will be kept and raised for their milk. Davis and her colleagues will have the conversation about what to do with male goats as the herd grows. Members must decide whether to sell the males to a farmer or petting zoos in the country, or keep them for meat for their members. Davis prefers the latter idea of locally raised and butchered goat meat.

Owning a farm and keeping livestock is a dream for many urbanites, at least among my friends back home in Victoria, but it can’t come true for most. Street Goat allows young families, avid metropolitan homesteaders, or just curious horticulturists to take part in traditional goat farming practices, within a couple blocks of their flats. Davis also hopes that as people care for the goats, other farming values will rub off on them.

“A big part of farming is watching how the land adapts as you go,” says Davis. “Working with it and developing your relationship with the land and animals and yourself, season by season.”

COME GET YOUR FISH AND GREENS!

I WAS STARING AT A BLACK TANK FULL OF WATER, WONDERING IF whatever I was supposed to be looking at even existed. Suddenly, a wisp of a fish, no longer than my pinky nail, floated into view. It was a tilapia fry, one of Dermot O’Regan’s auspicious fish that Grow Bristol will soon be selling in six months time.

O’Regan frowned. “We ordered them from [a hatchery in] Wales two weeks ago,” he admitted. “I thought they were going to be bigger.”

Grow Bristol is one of many initiatives to grow vegetables using aquaponics in the United Kingdom. O’Regan and his partner, Peter Whiting, wanted to start a business to raise and sell high-quality leafy greens and fish to restaurants and cafés, as well as educate community members and students and create job opportunities. While Grow Bristol is a social enterprise in its early stages, they’ve got bigger fish as models: GrowUp and Growing Underground, two companies in London, are selling salads to markets on a scale 10 times as large.

If you were envisioning Mason Street City Farm in Victoria, Grow Bristol might surprise you; rather than a picturesque urban farmstead, they grow their produce in lorry containers on a vacant lot beside an industrial site. Currently, O’Regan and Whiting have secured a site, rigged up two lorry boxes, together the size of one shipping container, and started to hold tours.



With a bit more funding, they will be ready to launch the “market garden stage” this spring and start selling micro-greens to distributors and restaurants.

“It’s all based around innovation,” says O’Regan. “We want to grow 365 days, fresh, local, sustainable, but in a creative way.”

Grow Bristol and other urban farming businesses fill a market niche by providing fresh produce with a small carbon footprint and clear traceability to its local sources. City-dwellers around the world are demanding food of a different calibre: grown nearby, picked by a farmer they know, and free of pesticides and herbicides. Farmers are under massive pressure to meet the appetite of a planet where 54 per cent of the population lives in urban areas. That number will rise to 70 per cent by 2050. Despite its famous country estates, only 17 per cent of the U.K. now lives rurally, so new urban farming businesses lessen the pressure not only on the remaining farmers, but also on the land.

“Farmers are under massive pressure to meet the appetite of a planet where **54%** of the population lives in urban areas”





Based on government statistics, O'Regan estimates that the U.K. imports 60 to 70 per cent of its salad greens. He plans to replace some of those imported leaves with greens grown right in the heart of the city. Grow Bristol has faced skeptics of its business model and its use of aquaponics, but O'Regan remains optimistic. He points to GrowUp Urban Farms in London, which produces up to 400 kilograms of salad heads per week using the same system in their warehouse. That's roughly 4,000 bags of low-resource salad every seven days.

"The reality is that we can't grow all year-round in our soils in natural light because of our climate," he says. Traditional industrial farming in the U.K. and elsewhere relies on oil-based monocultures that are ultimately unsustainable. "We're providing an alternative."

GREEN THUMBS ON THE EMERALD ISLE

A FEW WEEKS LATER, I WAS IN DUBLIN, FACING MY OWN BLACK BOX. I had been invited to a workshop called Designing Future Farms and Food Systems hosted by the Science Gallery and led by associate professor Carl DiSalvo from the Georgia Institute of Technology. I imagined PowerPoints of robots picking apples and corn—but thankfully, that wasn't the case.

Still, the idea of integrating "smart technology" into our fields and greenhouses puts me on edge. Like many people, I can't let go of my romanticized vision of farming. Farmers plant the seeds, farmers pick the food. DiSalvo thinks of it differently. "We've always used technology with agriculture," he says. "We could make the argument that agriculture itself is a technology."

The workshop split into five groups, and I joined the duo that run Dublin's largest community garden in an abandoned

parking lot outside the National College of Art and Design. We brainstormed an augmented-reality program that would teach volunteers farming basics before they committed to a garden project or a small-scale farm. The app could weed out the one-timers and generate genuine interest in people for farming.

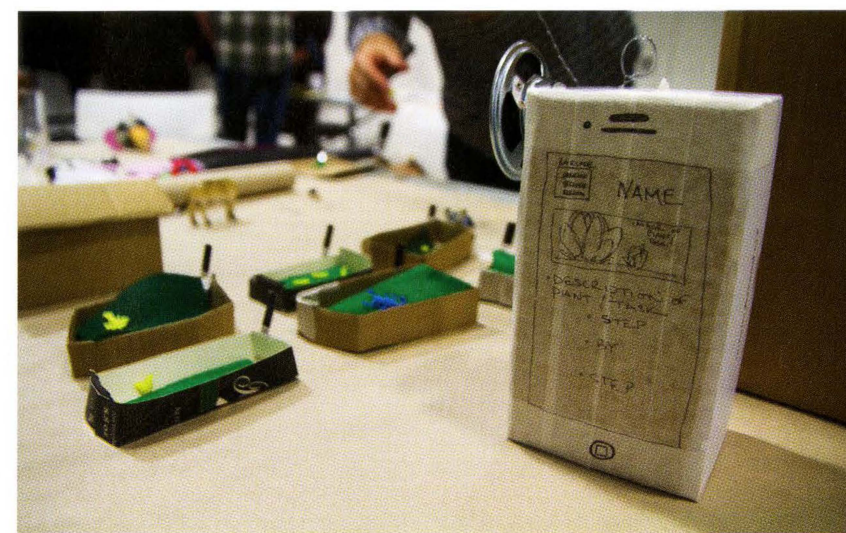
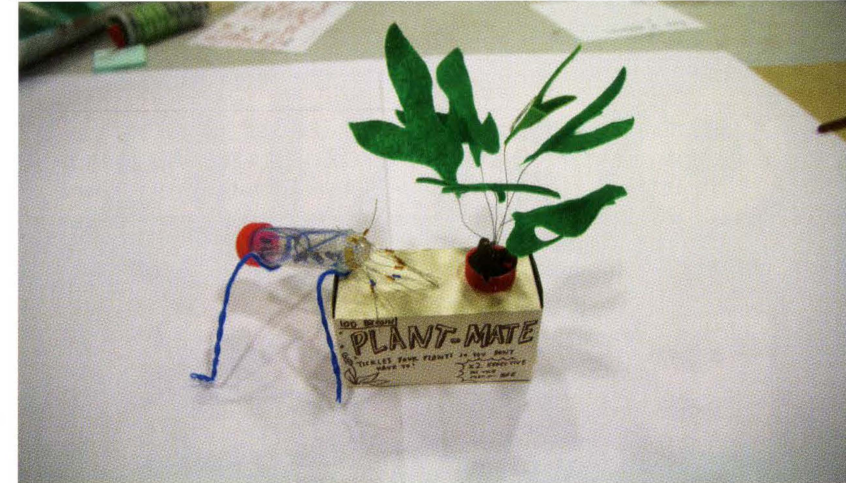
DiSalvo says that resilient food systems need a diversity of technology to maintain farms and urban growing spaces. Technology isn't the enemy, he insists, and it can help us better manage our crops. "I think we can do that in a way that still respects the values and the ethics that tend to motivate small-scale agriculture."

Dublin was nearly devoid of greenery—the trees, parks, and meridians felt barren compared with my hometown back in B.C. But I was determined to find out what this city was doing food-wise under its cracked concrete veneer. I contacted Urban Farm, a community project run by Andrew Douglas, and was invited to check out the site atop Belvedere College, a private boys high school in the heart of the city.

Douglas had started a rooftop garden atop a chocolate factory, but that project failed due to unplanned development. His passion for growing food in urban spaces flourished, however, so he contacted Belvedere College to capitalize on the school's ample rooftop acreage.

Urban Farm Dublin is more than a rooftop garden. The potato project produces more than 140 heritage varieties for the school. The roof hosts seven beehives. Tilapia grow in an aquaponics system that students use in their studies. Douglas is also developing oyster mushroom grow kits to be sold.

The final urban food endeavour I discovered in Dublin was the Grow Dome Project. Niall O'Brien, the visionary behind it, was



at the future of food workshop.

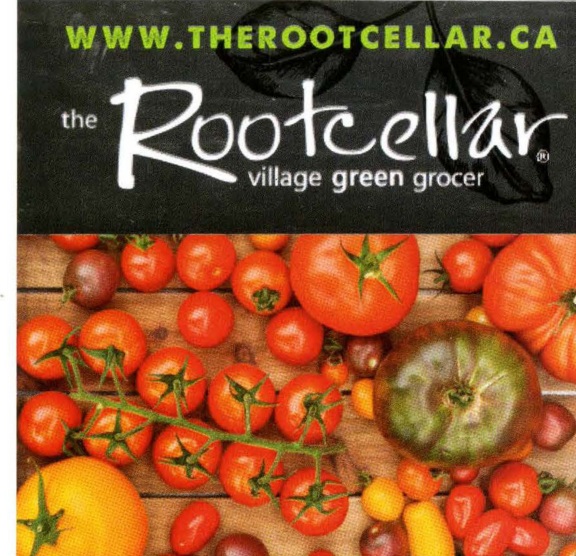
The project features a series of geodesic domes that encase a hydroponic system with rainwater catchment. The domes run off renewable energy sources and double as a community space for public meetings and shows.

"The idea is to take a derelict corner of land in the middle of an estate and try to turn it into a resource," says O'Brien. "We do that by growing crops intensely all year round within a fully automated off-grid geodesic dome using hydroponics."

Unlike London's famous Millennium Dome, Dublin's Grow Dome is a simple structure, only 11 metres wide, with the capacity to grow 1,000 heads of lettuce per week and catch up to 11,000 litres of rainwater. O'Brien hopes that the domes will be adopted by different housing estates across the city, providing food, water, energy, and jobs to the micro-communities.

The first dome was under construction when I visited the city, and O'Brien's enthusiasm for Grow Dome was palpable. "Instead of trying to solve all these huge problems in one place, on a massive scale," he explained, "it's a lot easier to solve them on small scales in the areas that need it."

Dublin and Bristol are two cities producing food in innovative ways that we could borrow for our own home by the sea: goat shares, aquaponic greens, school-top farms, and geodesic gardens straight out of a sci-fi movie. My trans-Atlantic food odyssey introduced me to creative people doing things differently to diversify their food sources and to eat locally. Together, we can all learn to open the black box of modern agriculture and fill it with a mix of traditional farming techniques, revolutionary new technologies, and the do-it-yourself power of people committed to making their communities really grow. ♦



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CALIFORNIA, HERE WE COME

What does the big drought down south mean for farmers here in B.C.?

BY ROBERT MORRIS

IN CALIFORNIA'S CENTRAL VALLEY, WHERE HALF OF THE United States' produce grows, the fifth year of drought has begun. Desiccated fields, cracked and riven, languish for lack of water. Dust storms rip through the valley and fertile topsoil blows away. During the winter of 2015, farmers allowed 1,778,174 million acres to lay fallow—15.2 per cent of all Californian cropland and a 140 per cent increase over 2011.

By comparison, British Columbia's drought during the summer of 2015 hardly deserves the name. In fact, the increased temperatures helped many farmers across the province. However, if drier and hotter summers become the norm for both California and British Columbia, as climate science predicts, will B.C. agriculture have enough water to ensure food security for the province?

In 2010, Vancity released a study showing that California produces more than one third of the vegetables consumed in B.C., and nearly three-quarters of our lettuce. Because B.C. relies so heavily on California farmers, their drought has stark implications for food prices and availability. According to Statistics Canada, in B.C., between August and September 2015, the cost of lettuce rose 8.5 per cent, and in general, over the last year, prices of fresh fruit and vegetables spiked 13.3 per cent and 16.9 per cent respectively.

The plummeting loonie doesn't help either. At \$0.74 for every American dollar as of Feb. 29, imported food has become more expensive. And the National Bank of Canada does not expect things to improve anytime soon: they predict \$0.77 by 2017.

The best news for British Columbians is El Niño, which drenched California with rain and snow in January of 2016. Unfortunately, the U.S. Drought Monitor, reporting on Feb. 25, said that while "there were localized improvements to drought intensity and coverage, the overall trend was toward maintaining or increasing the West's multi-year drought."

WHAT DO THE GROCERS SAY?

SPOKESPEOPLE FOR VICTORIA GROCERS THRIFTY FOODS and the Market on Yates declined to comment on the price spikes. Root Cellar owner Adam Orser explained that prices often come down to relationships. Citing the now famous \$8 cauliflower, which made the rounds of the Canadian twitterverse in January, Orser says that he managed to sell his for between \$2.50 and \$3.50.

Orser sources his Californian produce through eight different suppliers, each with long-term contracts that occasionally secure produce at reduced cost. For example, a case of 48 green onions that normally sells for \$25 or less had risen to \$100. But one of his suppliers had them for \$35, a savings passed on to customers. However, if the drought in California continues, Orser says those good deals will evaporate.

To prepare for this scenario, Orser works with local farmers to increase food production. This year, he collaborated with 150 farms to help with crop planning. As a result those farms have grown. Their produce can be more expensive, so Orser explains the price difference in-store—something people have responded well to.

But the future of local agriculture worries Orser. When he opened the Root Cellar eight years ago, the region supported six large family farms—think Galey's or Mitchell's—but now, only four remain. Replacing farms is difficult because of high land costs. Most, if not all, young farmers simply cannot afford to buy land; if they do, the debts can crush them.

Those small farms that do survive then struggle to compete with the scale and volume of industrial-scale agribusiness. That's why the Root Cellar works with so many small farmers, despite the extra logistics, instead of just large wholesalers.

"We're interested in local agriculture and we mean it," says Orser. "A lot of the retailers use local as a new trend but they don't back it up. They buy whatever comes from their supplier and they don't deal with any farmers. That doesn't get anybody off the ground. New guys won't get picked up by a supplier. We take it the extra mile. It's challenging to manage all those relationships on a daily basis but that's how farmers succeed."

DRIER AND WETTER: CLIMATE CHANGE IN BRITISH COLUMBIA

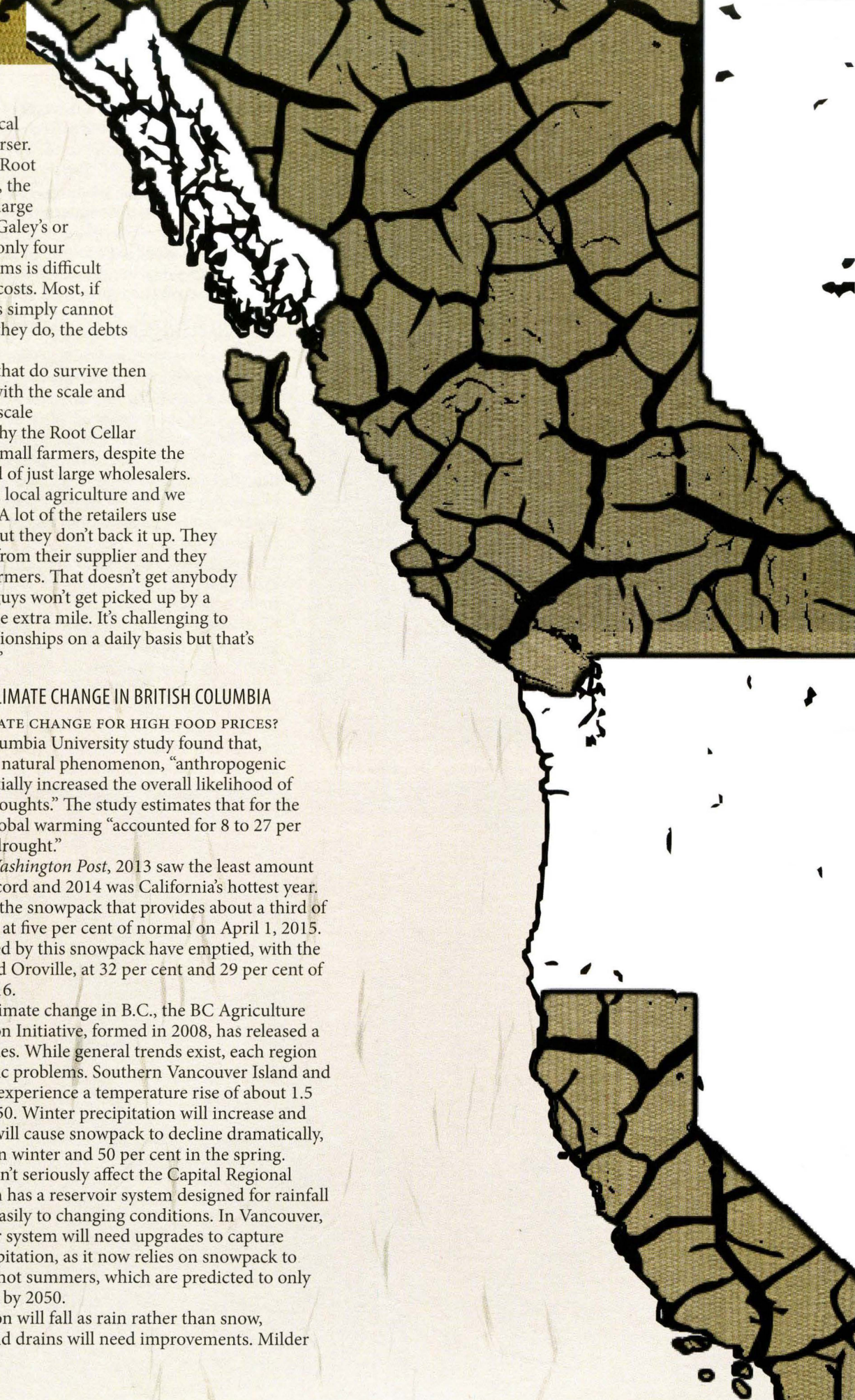
CAN WE BLAME CLIMATE CHANGE FOR HIGH FOOD PRICES? A comprehensive Columbia University study found that, although drought is a natural phenomenon, "anthropogenic warming has substantially increased the overall likelihood of extreme California droughts." The study estimates that for the years 2012 to 2014, global warming "accounted for 8 to 27 per cent of the observed drought."

According to the *Washington Post*, 2013 saw the least amount of precipitation on record and 2014 was California's hottest year. In the Sierra Nevada, the snowpack that provides about a third of California's water was at five per cent of normal on April 1, 2015. The huge reservoirs fed by this snowpack have emptied, with the two largest, Shasta and Oroville, at 32 per cent and 29 per cent of capacity on Jan. 4, 2016.

To educate about climate change in B.C., the BC Agriculture & Food Climate Action Initiative, formed in 2008, has released a series of regional guides. While general trends exist, each region will experience specific problems. Southern Vancouver Island and the Fraser Valley will experience a temperature rise of about 1.5 degrees Celsius by 2050. Winter precipitation will increase and higher temperatures will cause snowpack to decline dramatically, by about 25 per cent in winter and 50 per cent in the spring.

Lower snowfalls won't seriously affect the Capital Regional District (CRD), which has a reservoir system designed for rainfall that will adapt more easily to changing conditions. In Vancouver, however, the reservoir system will need upgrades to capture the extra winter precipitation, as it now relies on snowpack to replenish itself in the hot summers, which are predicted to only get drier—29 per cent by 2050.

Because precipitation will fall as rain rather than snow, floods will increase and drains will need improvements. Milder



winter temperatures will also enable more pests and diseases to survive and increase the need for pest control. And in the hotter summers, farmers will require more efficient irrigation systems.

A major barrier to these upgrades will be the return on investment a farmer can expect. The average farmer on Vancouver Island is 55 years old; in the Fraser Valley, the average is 53. For many, retirement is often the cheaper option. Younger farmers, already dealing with the high price of land, will probably need help.

B.C.'S DROUGHT

ACCORDING TO DR. HANS SCHREIER, SOIL SCIENCE INSTRUCTOR at the University of British Columbia, between April and August 2015, B.C. had the driest period on record. At Victoria's airport, only 61 mm of rain fell between April and August; for May, June, and July, only 17.4 mm. For comparison, between April and August during the years 1981 and 2010, the average rainfall was 157.7 mm.

Municipalities responded with staged water restrictions and eventually banned activities such as lawn watering and vehicle washing. On the Coldwater River, near Merritt, the water declined so severely, the government barred 50 farms from withdrawing any water between Aug. 11 and Sept. 30.

Less rainfall will affect urban farmers such as Vancouver's Sole Food. A social enterprise that grows food in vacant lots and provides employment to people with mental illness and drug addiction, Sole Food purchases water from the City of Vancouver. The drought almost shuttered their doors.

Last summer, Vancouver reached Stage 3 restrictions. Sole Food director of operations Lissa Goldstein explains that Stage 4 restrictions would have prohibited all commercial vegetable watering. "We would have had to shut down eventually," she says. "We didn't have a contingency plan and, because we grow food in containers, the plants have a very limited reserve to draw from—unlike in-ground crops."

To prepare for the potential move to Stage 4 restrictions, Goldstein

contacted Dr. Ken Ashley, director of the Rivers Institute at the British Columbia Institute of Technology. Ashley consulted with Sole Food on a draft letter to the city asking for an exemption from the restrictions. "Given the importance of urban agriculture and food security," says Ashley, "I thought they would be the last group to ever have their water supply restricted."

Fortunately, the city never progressed to Stage 4 because the Stage 3 restrictions lowered use to an acceptable level, about 1.3 billion litres a day. But the question remains: given a more severe drought, would Vancouver have shut down Sole Food?

SUSTAINABLE WATER AND ENDANGERED AQUIFERS

TO PREVENT A FUTURE WHERE SOLE FOOD WOULD LOSE ITS water, the provincial government created the *Water Sustainability Act* (WSA). Coming into force on Feb. 29, 2016, the WSA updates and replaces the antiquated *Water Act* from 1909.

Farmers now need a license for their wells, costing between \$250 and \$10,000, and must pay fees on the water extracted. They have three years to apply, but a representative from the Ministry of Environment said in an email that it has proposed to waive water license application fees for the first year to encourage the process.

New groundwater fees will be charged at the same rate as the existing fees for surface water and will increase from \$0.60 per million litres, with a minimum charge of \$25, to \$0.85 a million litres with a minimum charge of \$50. For example, the provincial government says the cost to irrigate 40 acres of a forage crop in Kamloops will increase from about \$90 to \$128.

Rosie Simms, the water law and policy researcher/coordinator at the POLIS Project on Ecological Governance, says the fees will be "amongst the lowest in Canada." In Quebec, the rate is \$70 per million litres, and it's double that in Nova Scotia. The price is also low when compared to what other non-domestic users in B.C. will pay—purposefully so, according to the Ministry of Environment to protect food security.

The government will use the fees to enact and enforce the WSA's regulatory structure, says Simms. To ensure this revenue stream can fund such oversight, POLIS recommends that government officials regularly review the fees and the rentals structure.

Policy researchers at POLIS also argue that new ground water licenses should expire while more information is gathered about whether current rates of extraction are sustainable. The Ministry of Environment disagrees and a representative noted that the province has mapped aquifers and monitored groundwater levels over the last few decades. This information can be accessed online through the BC Water Resource Atlas and the B.C. State of Environment Reporting.

One place the government best understands ground water is the Township of Langley, where the land base is 75 per cent Agricultural Land Reserve (ALR). Here, aquifers provide approximately 80 per cent of drinking water and nearly all of the agricultural water. There are 18 major aquifers that are recharged by rain. Of these 18 aquifers, five have significant economic impact. Of these five, four are unconfined, which means they are shallow and susceptible to pollution, primarily from farm runoff. These four aquifers are also drying up.

A study by resource consulting company Golder Associates noted in 2005 that aquifer observation wells in Langley have dropped between five and 51 cm per year. While not severe in the short term, over decades this decline can be dizzying, especially as population and industrial use expands. Provincial observation well 007, drilled to monitor water levels, shows that between

1962 and 2001, water levels declined almost 10 metres. This is significant, as four of the five major aquifers are only between 13 and 24 metres in thickness. In other words, these aquifers have experienced a 41 per cent to 77 per cent reduction in the water level over the last 40 years.

Farmers often use aquifers as a kind of bank. When drought arrives and ponds and ditches dry, farmers can withdraw more from the ground. According to Schreier, the problem is that replenishing those funds takes time—thousands of years for some aquifers. Declines in water levels also lead to ground subsidence, or sinking of land. Some areas in California's Central Valley have sunk a foot every year, destroying infrastructure. One bridge now sits below the water line and will have to be rebuilt. Costs to fix the Central Valley's infrastructure are estimated in the billions.

"Farmers often use aquifers as a kind of bank. ... The problem is that replenishing those funds takes time"

WHAT DO THE FARMERS SAY?

FOR CATHY FINLEY AT LAURICA FARM IN LANGLEY, AQUIFER decline and water management have real implications. She had no choice but to reduce water use during the drought

"My family didn't shower for three months," she says. "All the water went to the plants and we still lost some. We had to decide what we were going to sacrifice."

Finley decided that the beds off the primary irrigation system and her herb spiral could die, but this meant a loss of investment, time, and income—something a small farm like Laurica has a hard time coping with, especially since they invested over \$60,000 on wells in 2015.

"Our original well ran dry within our first year," says Finley. "We had to drill another well but that ran dry a year to the day we drilled it and so we had to go down further." They drilled from 18 to 52 metres to find an abundance of water. Unfortunately, the aquifer contained an ancient rainforest which had contaminated the water; it was suitable for irrigation but not for the

livestock Finley raises. And they can't go deeper—a test well at 70 metres found salt water.

Snow from Mount Baker feeds their aquifer, but there isn't enough. At the same time, the clay below their aquifer means it replenishes more slowly. Finley doesn't want to increase her dependence on well water because it's not sustainable.

So Finley has begun to study how farmers with permanent drought manage. In Western Australia, for example, they collect every drop of rainwater to survive. Finley hopes to mimic the Aussies this winter by collecting rainwater from her roofs to store in a pond. During the summer months she can use it to irrigate.

These upgrades cost, however, and need immediate attention. Some government help exists, such as the Environmental Farm Plan, but as Finley notes, the funding is only available after five years' membership, and she is still in the application process.

"I don't want to see us in a situation like California where they are being reactive. We need to be proactive," she says. "Just the other day I was at a farm session about water conservation through soil carbon and I was talking to the panel when I mentioned rain water harvesting and their faces were blank."

Only 20 kilometres north of Laurica Farm, Chris Bodnar at Glen Valley Organic Farm experienced an ideal growing season due to increased heat and plentiful water from their new well. Completed in 2015, the well replaced the farm's system of dugouts, which ran dry when the rain stopped for any significant period.

The well taps into the Fraser River's water cone and will only go dry if the river does. That seems unlikely, given a study from the University of Northern British Columbia, which found that although snowpack declines have been severe, dropping about one-fifth, increased precipitation has compensated and river levels should remain stable. However, faced with a multi-year drought like California's, levels could decline and leave the Fraser like the vanished San Joaquin and Guadalupe Rivers.

The drought did have drawbacks. Bodnar pumped more water to crops that previously would have survived off the water held in the soil. That increased his electricity costs for the well pump and meant he had to purchase and install new drip-line equipment.

Even with the increased costs, Bodnar doesn't think the higher water rates under the *Water Sustainability Act* will harm his farm.



ILLUSTRATIONS: SAMANTHA WEY

He sees the act as a vital first step. "If anything," he says, "it's still not enough oversight."

WHAT ABOUT THE CAPITAL REGION DISTRICT?

SPEAKING TO FARMERS ABOUT WATER REVEALS ONE consistent fact—the challenges vary substantially. In the CRD, Dave Chambers at Madrona Farm reported one of his best growing seasons ever, helped by the warmer summer temperatures and the early return of dew in late July, which allowed him to plant his winter turnips sooner. That will mean more local produce in the early spring and winter when most is usually imported from California and Mexico.

Chambers and many CRD farmers don't have to worry about water because they purchase it from the municipalities—albeit at much a higher rate than well or surface water, \$210.50 for every million litres compared to 85 cents. Chambers does not find the cost prohibitive, reinforcing Simms's position that provincial water rates are extremely low.

"Municipal water is often cleaner," Chambers says, "and there is less pond or well maintenance. Now we can even use our ponds as habitat, which has brought a high bird population."

For farmers in the CRD, the Greater Victoria Water Supply Area is a huge boon. It comprises 10,927 hectares of forested land in the Sooke and Goldstream watersheds. Between the five reservoirs in these two watersheds, there are currently 170.32 million cubic metres of storage. To provide for the future, the CRD purchased the Leech watershed, roughly doubling the size of the catchment area, in what Schreier describes as a very wise move that Vancouver could learn from.

Even without the Leech watershed online, on Sept. 1, 2015, just days after the drought broke, the reservoir still sat at 66.5 per cent of storage volume. As of Jan. 17, 2016, the reservoir was full.

What worries Chambers is not the water but the loss of ALR farmland to semi-industrial use and development.

To contribute to conservation, Chambers has worked to create a National Trust model borrowed from Britain. At the moment, Saanich council is considering a motion to establish a farmland trust for long-term leases to farmers.

THE FUTURE OF FOOD SECURITY

THE CALIFORNIA DROUGHT SHOULD warn British Columbians about the danger of relying on food grown outside of the province. California's drought has still not ended and climate scientists predict global warming to worsen. Despite the sobering situation, vegetable production in B.C. has fallen 20.4 per cent since 1991.

In the Fraser Valley, many farmers have switched to growing higher-value blueberries for export to India and China. Small farm plots go fallow for a variety of reasons: disinterested owners not incentivized to use it, sale to real

estate speculators, or people looking to build a home in the country. In Metro Vancouver, according to a 2014 study, of the 58,948 hectares of ALR land available, nearly 40 per cent is not farmed. Of the land that is, only 14 per cent has vegetable crops.

This land represents a wasted opportunity to increase food production. At the moment, B.C. farmers currently meet about 50 per cent of our food needs—and the province's land could feed many more people.

A recent *DeSmog Canada* article covering the Site C dam in the Peace River Valley noted that "1,800 hectares of the best farmland on the Site C chopping block could produce enough fruit and vegetables to meet the nutritional needs of one million people a year." Not only could Site C farmland feed a million British Columbians, the Peace River Valley is closer to Vancouver than California's Central Valley.

A solution to this issue is government regulation, such as a resilient Agricultural Land Reserve or tax incentives so farmers can pass on agricultural land to younger people who want to farm it. Dr. Kent Mullinix, director of the Institute for Sustainable Food Systems, said that in Denmark only licensed farmers can even own farmland. Radical solutions may provide the best answers as climate change drastically alters the environment—partially fuelled by transporting food long distances.

But will people pay for local produce? A 2005 study in the *American Journal of Agricultural Economics* says yes. After analyzing surveys, researchers found that shoppers at grocery stores in Ohio would pay 16 per cent more for local food while shoppers at farmers' markets would pay 31 per cent more. A similar finding by marketing company Loyalty One found nearly half of Canadians would pay 15 to 30 per cent more for local food. It also noted that Canadians found a lack of supply in grocery stores the biggest impediment to buying local.

The demand for local food exists and B.C. has the land to grow it. But local farmers need help, such as a robust regulatory system that encourages agriculture and offers financial protection. And they need water.

IS THIS THE END?

WELL, ONLY THE END OF THIS ARTICLE—AND PERHAPS FOR California. Climate models predict a tough future: more scorching temperatures, droughts, and wild fires. For B.C., climate science promises less severe problems.

In Vancouver, less rain in the summer combined with a smaller snowpack mean the reservoir system may need costly improvements to bank the winter rains. Farmers in the Fraser Valley will have to spend money to protect farms from flooding and pests. B.C.'s government will need to let municipalities respond to water crises and approve their individual plans. Citizens may need to change their attitudes toward green lawns in the summer and create "xeriscapes," landscapes that require little or no water.

B.C. will need to embrace an ethos of conservation—not just talk about it. The *Water Sustainability Act* is a first step, but the province will need to do more. "We have unlimited water here!" That's what B.C.'s farmers loved to say, even just a decade ago. Such abundance can no longer be taken for granted. ♦

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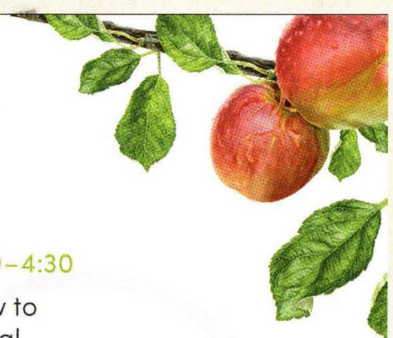
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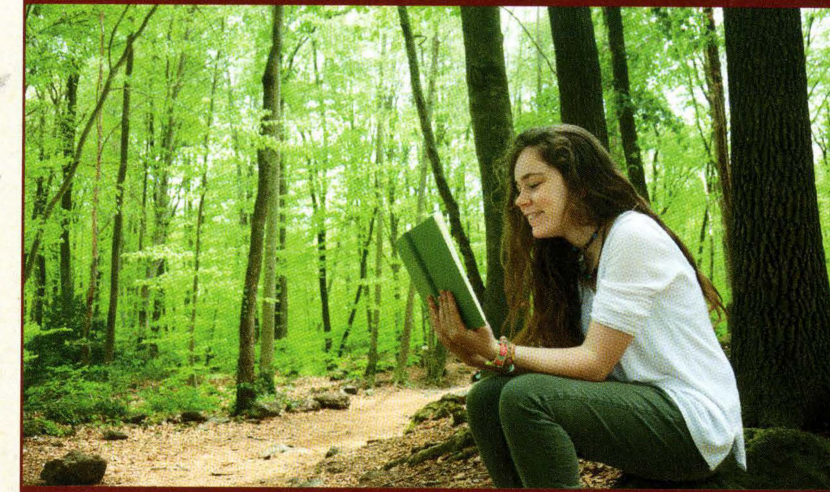
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How can gardeners help to conserve water?

Hatchet and Seed, an ecological land design firm, has some pointers

- Let your garden mimic how a natural landscape handles water. Hatchet and Seed have a mantra for this: **slow, sink, spread, and store**
- Increase carbon soil levels: for every one per cent increase in soil carbon, an acre of land will store an extra **56,000** litres of water
- To increase soil carbon, Hatchet and Seed recommend heavy mulching, cover cropping, and a no-till approach. Also, try **drip or micro-spray irrigation, windbreaks, and shade trees**

Better Off FED

Downtown Victoria grows up with a new Food Eco District

BY BENJAMIN CLARK AND DAVID LEACH

WHAT

THE FOOD ECO DISTRICT (OR FED) IS AN idea, an organization, and an urban zone that combines green business leadership and volunteer power with a vision to transform a quadrant of downtown Victoria into a showcase for urban food production and sustainability.

WHERE

DOUGLAS, JOHNSON, QUADRA, AND Broughton streets form the boundaries of the 12 square blocks of the FED. But its borders remain fluid—and organizers work with restaurants beyond this downtown district, too.

WHEN

LAST AUGUST, CHEFS, RESTAURANT OWNERS, musicians, volunteers, and members of the public celebrated the official launch of the FED at the Fort Common. This April, the FED held a fundraiser in the Robert Bateman Centre to celebrate local food and holistic beauty.

WHO

THE FED IS AN OUTGROWTH OF SYNERGY Sustainability Institute (SSI), a non-profit with a mandate to catalyze the green economy on Vancouver Island. SSI itself sprouted from Synergy Enterprises, a company that has worked in corporate sustainability management since 2009. “The common goal of all FED partners, including

property owners, restaurants, and volunteers, is to create a destination with incredible public spaces and progressive green restaurants,” says Jill Doucette, founding partner of Synergy Enterprises and a FED director.

FED has a few dedicated volunteers. Participating restaurants and members include AJ’s Organic Café, be love, Big Wheel Burger, Chorizo & Co., Fishhook, Habit Coffee, Ingredients Café and Community Market, Tacofino, Yates Street Taphouse, and Zambri’s. Suzanne and Jane Bradbury, owners and developers of Fort Properties, took a leadership role when they transformed a parking lot into a public courtyard, now known as the Fort Common, with planter boxes for growing food used by adjacent restaurants.

HOW

FOR YEARS, ECODISTRICTS, A PORTLAND-based organization, has worked with municipal planners and politicians around the world to promote city building that considers citizens and the natural environment in a cooperative way at the neighbourhood scale. Last year, Victoria FED staff and volunteers attended a workshop conference in Portland held by EcoDistricts. There they learned two key lessons: the importance of involving all community members at the outset of any project to recognize the identity and history of each neighbourhood, and the value of

sharing the financial risk for big projects between public and private entities. The goal of the FED is to move from promoting local restaurants and farmers and adding planter boxes downtown to also influencing municipal policy and public awareness throughout Greater Victoria.

WHY

FOR MANY FARMERS, IT CAN BE EASIER TO SELL ALL OF THEIR produce to a single grocery store for a lower price than they might get from a roster of local restaurants. The FED can coordinate supply chains and support small farming operations by connecting chefs—and their ever-changing seasonal menus—with Island farmers, who don’t have the time to manage complex distribution with multiple buyers. “Security of demand is important for farmers selling perishable products within the local food system, says Alex Fletcher, who has operated Wind Whipped Farm’s community-supported agriculture program with his partner in Metchosin since 2008, “especially new farmers, who are burdened with farm start-up expenses and have to balance a substantial production-related workload with marketing.” If the FED can help farmers connect with local restaurants, then that could relieve financial pressure.

But what about business owners who can’t source their products locally? To get its beans, Habit Coffee, one of the FED’s most active members, partners with coffee roaster Bows & Arrows, whose operators visit Central America and East Africa to form relationships with coffee growers—both family farms and more established operations. “[I] can forge relationships with the smaller, less stable producers and invest in very significant improvements to their coffee production,” says Drew Johnson, owner and roaster at Bows & Arrows, “therefore lending that potential stability in a volatile market and physical climate.” At Habit Coffee, owner Shane Devereaux has also

created a community space and made his two locations more sustainable since he opened the first one in 2007. Separating compost proved to be a simple task, and now a single garbage can for landfill waste is picked up once a month. The two shops are carbon neutral and use bikes to transport coffee and supplies, which earned Habit a 2015 EcoStar award in the transportation category.

That can-do attitude drew Brian Bobiak and Jason and Barry Chan from The Village to the FED for help building edible planter boxes that now offer a welcoming—and nutritious— atmosphere to the patio at the restaurant in Oak Bay’s Estevan Village. The chain recently opened a Gordon Head location, on Torquay Road, not far from two backyard plots they use to grow food for their families, friends, and restaurants. The staff also learn how to grow food. “It’s hard today to know what goes in your food if you don’t grow it yourself,” says Bobiak, “so the easiest way to provide the best food to our Villagers is simply by growing it ourselves.”

Just two years old, the FED has already connected downtown chefs and café operators with Island farmers and local-minded suppliers. It’s no wonder that green-thinking restaurant owners outside the boundaries of the FED’s 12 square blocks of urban Victoria want to tap into that same energy. Maybe that’s a future stage in the evolution of Victoria’s FED: 13 different Food Eco Districts—one for each of Greater Victoria’s municipalities—connected like an archipelago by a vision of learning how to grow and eat more locally, to know more about where our food comes from and how it impacts the planet we all share. ♦

Benjamin Clark is a FED director and local food advocate conducting research in food security at Royal Roads University.

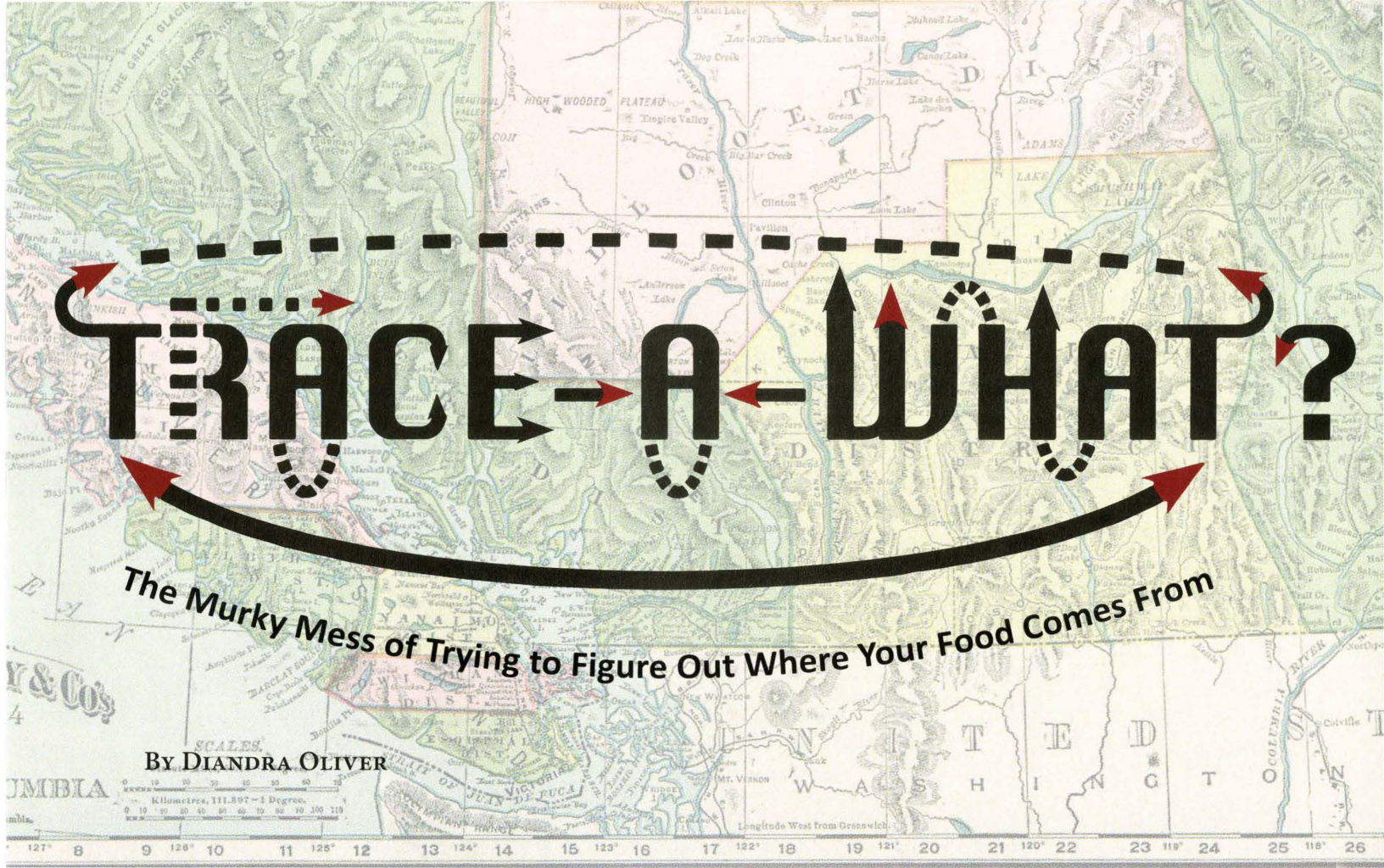
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A COUPLE OF YEARS AGO, I PARTICIPATED IN A “GETTING TO know you” exercise with students in a food security course at the University of Northern British Columbia. We were asked to talk about where we thought our breakfast came from, and so we told each other about boxed cereals, cartons of orange juice, grocery store bread, the odd free-range egg and homemade muffins, and coffee quaffed on the way to class.

We were surprised to learn that the grains in our cereals probably came from the United States and that the carton of “fresh” orange juice was likely squeezed a month before. The conversation encouraged us to read the fine print on labels and think deeply about the origins of every meal.

Most of us, though, don’t shake hands with the farmer who grows the carrots in our cakes. Nor do we usually catch and gut the sockeye salmon for our dinner plates. If we want to know where our food is grown or made, we need to trace its farm-to-fork journey through the food system. That means researching how the food industry operates and how it is (or isn’t) regulated. That legwork can lead to rude awakenings—such as the fact that your two litres of organic milk includes milk from multiple cows or that it’s illegal to sell ungraded farm eggs at a retail store, as well as the realization that we all have a lot more learning to do.

ONE SYSTEM TO RULE THEM ALL

BOTH FEDERAL AND PROVINCIAL GOVERNMENTS REGULATE the production, identification, and transportation of food. “Traceability” reflects the ability of a producer, customer, or regulator to follow any food item or ingredient through the supply chain using a series of tags and data logs.

In Canada, the 1990 *Health of Animals Act* defines how animals are to be treated within the food system. The act’s sister document, the *Health of Animals Regulations*, outlines the measures that producers within the food industry must follow. Updated in 2015, the regulations tell industry members which animal food products to trace and how.

Within the food system, most measures and standards have been put forward by industry. Some form of traceability has always been within the act, but a federal infusion of cash into traceability programming in 2013 now ensures producers have the tools to fully adopt the regulations.

This investment helped to establish TraceCanada, a national non-profit working to put the power of data into the hands of farmers and producers in the livestock industry.

Until TraceCanada was created, the food industry hadn’t fully coordinated its approach to traceability, which sometimes put food safety at risk. Organizations such as the British Columbia Pork Producers Association and the Canadian Cattle Identification Agency worked with farmers to trace livestock from the farmhouse to the slaughterhouse and then to the butcher and the grocery store. However, an animal could cross many different identification and tracking systems before its meat reached the store, where the labels lacked key information about the product’s source.

“A project like TraceCanada makes the market safer for producers and consumers,” says Joshua Belinko, the executive director. “If we have good information that identifies the source, spread, and key locations of a food safety problem, we would then be much better able to mount a more effective response.”

While many livestock producers had implemented voluntary traceability systems, they weren’t keeping adequate records for food safety investigations and recalls. In recall situations, the Canadian Food Inspection Agency (CFIA) might lose crucial time deciphering company-defined labels or illegible records—putting consumers at risk.

TraceCanada brings together government and industry partners to address changing regulations at the federal level. It also supports farmers and their industry organizations to apply international traceability standards for their products.

“It’s our goal to serve every livestock species that is part of the regulatory regime in Canada and to give everyone the ability to have a traceability system,” says Belinko. “Farmers will have access to the platform on their mobile phones and can easily create reports.”

WHAT FISH? THIS FISH

IN 2010, A HANDFUL OF VANCOUVER ISLAND FISHERFOLK and staff from Ecotrust Canada met to develop cloud-based software aimed at seafood traceability and marketing. Headed by long-time Ecotrust staffer Eric Enno Tamm, ThisFish gives seafood producers the opportunity to sell the story of their catch.

Harvesters tag their products and upload the data to ThisFish. Other links in the supply chain can upload info about handling and shipping. When you buy a seafood product with a ThisFish label, you can enter the code on the website to get the backstory about your catch and the harvester.

Tracing seafood can be difficult. Many products are caught and sold illegally (upwards of 20 per cent come from “pirate” fishers), undermining legitimate seafood economies and causing global economic losses of \$10 to \$23 billion annually. When clandestine seafood enters the market without adhering to international trade regulations, it also becomes impossible to trace the meat of your spicy tuna roll.

“Ninety-nine per cent of the time consumers say, yes, they want to know where their food comes from,” says Enno Tamm. “But consumers are often surprised how big the global seafood industry is and how much the product moves around.” Even

with labelling and traceability regulations, fishermen and seafood companies resist calls to reveal their fishing locations or production methods for fear of losing a competitive advantage.

The new regulations and technologies also add time and extra costs that eat into a company’s bottom line. “Big companies will be able to make the change easier than smaller companies,” says Enno Tamm. “We need to be careful about putting in rules that disadvantage small players in the food industry.”

“99% of the time a consumer says yes they want to know where their food comes from”

LEFT OUT IN THE COLD

IN THE LOCAL FOOD MOVEMENT, WE OFTEN TALK ABOUT “coming to the table” as a symbolic gesture of sharing. If you enjoy local food, traceability always has a seat at that table. Rather than relying on a corporate barcode or government database to know where our food comes from, we can also rely on our community’s knowledge of food sources.

Local traceability manifests in the relationships we have with the people who grow our food, the places where the food is grown, and the taste of the food itself. The main goal of the traceability movement is to make transparent—and perhaps shorten—our food’s journey from harvest to plate.

As local food makes inroads into conventional grocery stores, food safety regulations remind small producers that it takes more than strong relationships or novel food products to succeed. Sometimes innovation collides with the hard wall of regulation—to the detriment of hungry locavores.

In December 2015, the CFIA told the Victoria-based ice cream company Cold Comfort to remove their products from 10 stores

FANTASTIC LABELS AND WHERE TO FIND THEM

Whether you get your food from a farmers’ market or a grocery store, product labels hint at the source.

Here’s what to look for:



Place-based brands scream local. Look for an area postal code to confirm.



Headquarter’s address is printed for brand names. Check the company website for product details.



Slaughterhouses label their packages with a location number, type of product and cutting date.



PHOTO CREDIT: THISFISH.CA



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in the capital region. CFIA agents had determined that Cold Comfort's labels did not meet guidelines for sale in retail locations. My favourite, Bay and Birch, was exiled from store freezers back to Cold Comfort's production facility, where ice-cream lovers could still buy tubs as off-sales.

The CFIA follows federal legislation that dictates what kinds of food products can be sold and what information must be made available about each product. While food producers work with environmental health officers from their local health authority to ensure their business is a "food safe" environment, they sometimes miss the CFIA's traceability regulations, especially when they are so cumbersome to begin with.

Small producers who sell at their own store or a farmers' market only need to supply basic labelling guidelines—such as address, company name, processing date, and ingredients—because the maker is on-site to answer questions about ingredients or processing. When sold in retail stores, however, a product requires detailed information about the company and ingredients, including a nutritional table. For companies like Cold Comfort with ever-changing varieties and flavours, the time and cost to standardize each recipe with a new label can make meeting labelling requirements extremely challenging.

"I wish the outdated details in the CFIA manual could be updated because people want access to local food and the little creative things that are starting to happen," says Autumn Maxwell, the owner and chief ice-cream maker of Cold Comfort. "In my store and at the market is okay. But other retail? It is not okay—and it's confusing."

The rules are often applied only when the CFIA fields a complaint, which can add confusion in the grocery aisles. One company's product, such as Cold Comfort ice cream, might get pulled from the market while other products with similarly sparse labelling get to stay.

MEET YOUR MAKER

IN MY EFFORTS TO SHORTEN THE DISTANCE BETWEEN the farm and my fork, I've reduced the number of hands that touch most of the food I eat. I bypass mid-winter blueberries grown in Chile or my favourite pub food—pre-breaded and frozen calamari from the freezer section. Giving up these foods has led to opportunities to meet the farmers and harvesters who feed our communities.

My own traceability system relies on trips to local food businesses near where I live—whether it's a farmers' market, a butcher, the neighbourhood health food store, or semi-rural farm stand—and the relationships built on trust I now have with these farmers and producers.

As a public policy, traceability can seem overly concerned with the past tense of our food: Who grew it? Where did they grow it? And when something goes wrong, who is to blame? While I rely on place-of-origin and nutritional information on corporate food products, when I'm eating local I trust small-scale food producers to be honest with me about the source of their products.

These relationships make me feel confident that we are looking to the future together. When we commit to a local traceability system by shaking the hand of the person who grew our food, we contribute to a growing consensus that it might be easier to make it there together, one mislabelled pint of ice cream at a time. ♦

APP REVIEW: MY GREEN SPACE CREATED BY MICHAEL MOLL



SPRING IS HERE! YOU'VE ordered your seeds, gathered your supplies, and you're already dreaming about the delicious meals your garden will produce. Just around the corner lies a future of scarlet runner beans trailing up bamboo lattice or baby broccolis popping up out of the rich soil. But what if you transplant your bedding plants too early or forget to water your darling little

buds? What if your seeds don't set down roots or a herd of slugs move in?

Well, there's an app for that. Michael Moll created My Green Space to take care of you and your garden. The B.C.-made app features a planning tool that uses a gardener's geo-location to determine the growing zone and then leads iPhone-tapping green thumbs through a self-assessment. The app sets up the garden as a project and integrates local weather and best practices to send the gardener daily reminders to do the right things. This digital approach, Moll says, reduces the time to get started by 90 per cent and mistakes by 80 per cent.

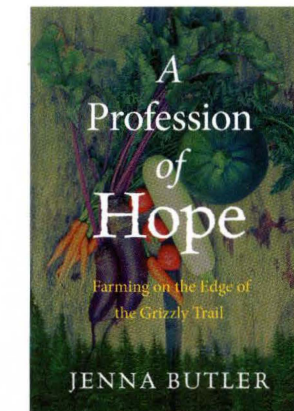
Both the desktop platform at mygreenspace.co and the mobile app help users plan their plots by matching plant varieties with location and time of year. It then advises when to water, what kind of sunlight the plants require, when to harvest, and what else to buy to get the job done.

Designed for British Columbia's bioregions, the mobile app has features not found on the web version, including troubleshooting for pest and disease management and an algorithm to match companion plants. Users can download the app for free to plan a garden, but the additional aspects cost a monthly five-dollar subscription.

The best feature, however, is the real-life social network that gardeners will grow once they get their hands in the ground. "There's no reason to be burdened by your garden," says Moll. "There are many benefits of growing food—spiritual, environmental, community, and economic. Whatever gets you into gardening is great, but you get the other benefits as well. It's a great time to start growing food and reconnecting with the land."

— DIANDRA OLIVER

BOOK REVIEW: A PROFESSION OF HOPE: FARMING AT THE EDGE OF THE GRIZZLY TRAIL BY JENNA BUTLER



STARTING A FARM NEXT TO the boreal forest doesn't seem to make sense, but it fits with the contradictory life story captured in *A Profession of Hope* (Wolsak & Wynn, 2015). When Jenna Butler, a poet and professor at Red Deer College in Alberta, decided with her husband to fulfill a dream of going back to the land, they discovered that "much of the best black-soil land immediately around Edmonton" was

being sold for development. They bought property in grizzly country instead.

Butler and her husband, also a teacher, must split their lives between farming and teaching in the city. Their two-hour commute presents another ecological inconsistency in its CO₂ emissions. However, the Butlers' compromises emphasize how our society makes it nearly impossible to earn a living on a small farm.

Butler speaks of agricultural lands as "mediated spaces," and her poetic writing is mirrored in the book's structure. Instead of a straightforward narrative, Butler gives readers vignettes of her life at Larch Grove Farm, named for the tamarack trees that fill its 135-acre forest.

"Rather than getting up on a soapbox," she writes, "my way of managing this discussion has always been to bring in a box of sweet summer carrots, just picked in the market garden and rubbed free of soil." The Butlers build a community around their farm, and their farming practices grow to inform their teaching.

Fair-weather farmers on Vancouver Island will count their blessings as they read about clouds of black flies and July frosts. "What we face here is the heartbreak associated with trying to grow crops in a region that is unpredictable," writes Butler. Yet we can also relate, as climate change begins to make all bioregions unpredictable.

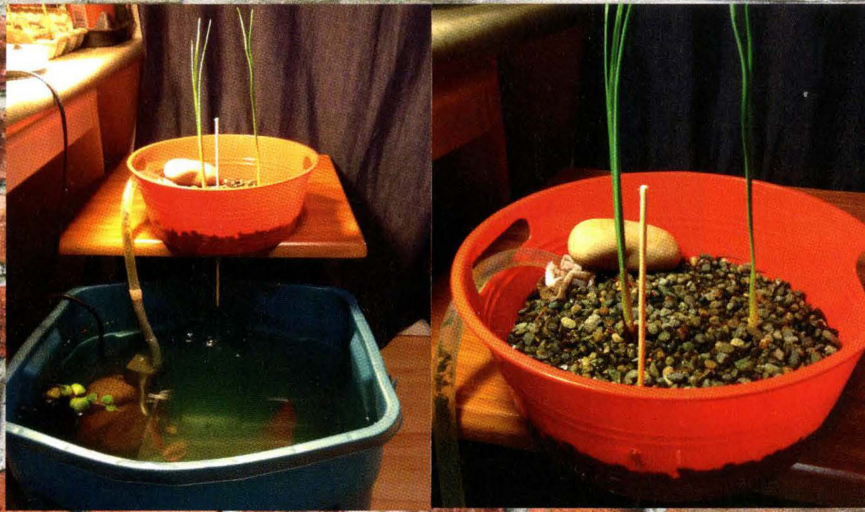
A Profession of Hope's one major flaw is how Butler speaks of the importance of knowing the land's history but never acknowledges the Indigenous history or claim to the farmland she troublingly calls "untouched."

Still, Butler writes from a place of love, for the land and for a different future that fights for balance. "The boundary between wild and kept land is tenuous here, constantly shifting. That, more than anything, keeps us humble."

— QUINN MACDONALD

MALACHI STEWART'S HOMEMADE AQUAPONICS

AQUAPONICS IS A SELF-SUSTAINING SYSTEM THAT ONLY NEEDS A PUMP FOR electricity (and maybe a lamp if you don't have enough natural light). The aquaponics system uses the nitrogen cycle—when fish excrete ammonia, which is converted into nitrates, which in turn are absorbed by the plants. This is a fun, easy, and rewarding weekend project.



In the picture of my grow bed, you can see that I added cloth to the end of my pipe to adjust the input. It may take a while to get the input and output just right. You will need a lot of light for your plants. My system is in front of a window and under a lamp so I get a mixture of natural and artificial light. This set up works best for me, but you can adjust as you wish.

INSTRUCTIONS

Assembly time: three to four hours

Materials: Sump tank (big container), grow bed (small container), pump, connecting pipe, little pipe, your choice of plants, gravel, small, freshwater fish, and scissors.

Construction:

- Place the grow bed above the sump tank—use a table or stool if you have to. Connect the pump to the connecting pipe then place the pump in the sump tank
- Cut a hole in the bottom of the grow bed. Use your second shorter pipe and push the pipe through the hole and apply adhesive (hot glue works well)
- Fill the bottom of your grow bed with gravel, being careful not cover the pipe at the bottom. Put the other end of your connecting pipe (the longer one) in the grow bed you can use tape to hold it in place
- Anchor plants in the gravel—I find strawberries work well. Fill the sump tank with water and turn on the pump
- Wait a few days then add fish. I use goldfish but there are many freshwater fish options



PHOTO COURTESY OF CITY OF VICTORIA

BURNSIDE GORGE COMMUNITY CENTER

WHERE: 471 CECELIA RD, VICTORIA
WHO: CONNECT LANDSCAPE ARCHITECTURE AND GARYALI ARCHITECT INC.

FROM THE VANTAGE POINT OF CECELIA ROAD, THE LIVING roof of the Burnside Gorge Community Centre almost disguises itself as a garden. Publicly accessible gravel paths wind between drifts of native flowers, succulents, and grasses. From the undulating concrete railing, you can look over the community garden, Cecelia Ravine, and the Galloping Goose Trail.

David Stoyko, of Connect Landscape Architecture, says that the roof was designed to mimic the original Garry oak ecosystem, now threatened by development. This climate-adapted design not only reduces the amount of water and nutrients required, but it also provides habitat for local wildlife and an educational opportunity for the many children who use the centre. In fact, 90 per cent of the site functions as green space—helping it win the 2009 Green Roofs for Healthy Cities, Extensive Institutional Green Roof Award of Excellence.

Inside, wood panelling covers much of the polished concrete interior and warms the natural light from the large windows, which reduce the need for artificial light by up to 80 per cent. The few light fixtures are shielded and strategically placed to cut down on evening light pollution, which benefits both nocturnal animals and stargazers.

Suzanne Cole, executive director of Burnside Gorge, explains that before the centre opened, programming occurred across many different sites, including portables, offices, and school gyms. Now the community has a hub, and participants love it. "It's stroller and wheelchair friendly, something many of our other buildings lacked," says Cole. "And it's clean, it's new, and it's beautiful. It's like nothing we'd had before."

Cole leads an exuberant tour of the lower level where programs occur. Built on a slope, the bottom half of the building would feel subterranean if it wasn't for the windows in the hallway that allow the natural light in the event rooms to penetrate the building—a creative solution from Garyali Architect Inc.

Exploring the hallway that bisects the building, Cole points to educational panels on the wall that allow visitors to act as their own tour guides. Along with infant-tot drop-ins, preschool, and high school programming, the centre also offers fitness classes for retirees and the elderly. Rooms can be rented out for community and private events and there is even a small movie theatre for teens. Cole estimates the centre served over 2,000 families and 65,000 people in 2015.

Back upstairs, Thomas Soulliere, director of parks, recreation, and facilities for the City of Victoria, explains that all aspects of the building were sustainably designed. Every toilet and faucet is ultra low flush, saving 610,000 litres of water per year. The permeable parking lot, green roof, rain garden, and swale (essentially a sloped rain garden) filter and absorb rainwater and direct any excess into a drainage system, recharging Cecelia Creek. The rehabilitation of Cecelia Creek informed the entire construction of the centre, including during site excavation, when an erosion control plan ensured sediment would not pollute the waterway.

Completed in 2007, the building didn't function perfectly right away. Some of the living-roof plants died. The on-demand heating needed adjustment because the constant traffic caused the system's energy use to spike. However, the management team overcame setbacks, and now the centre has reduced its CO₂ production by 160,000 tonnes.

For the future, Soulliere says the City has begun to track the energy use per square foot so managers can compare buildings across Victoria. "This was the City's first LEED-certified building," he says, "and the organization has committed to applying those sustainable principles and practices in all major renovations and construction projects."

— ROBERT MORRIS



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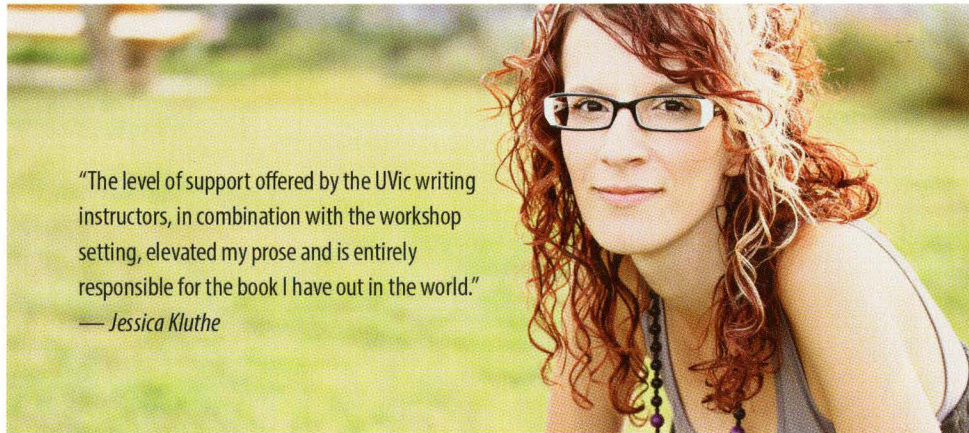
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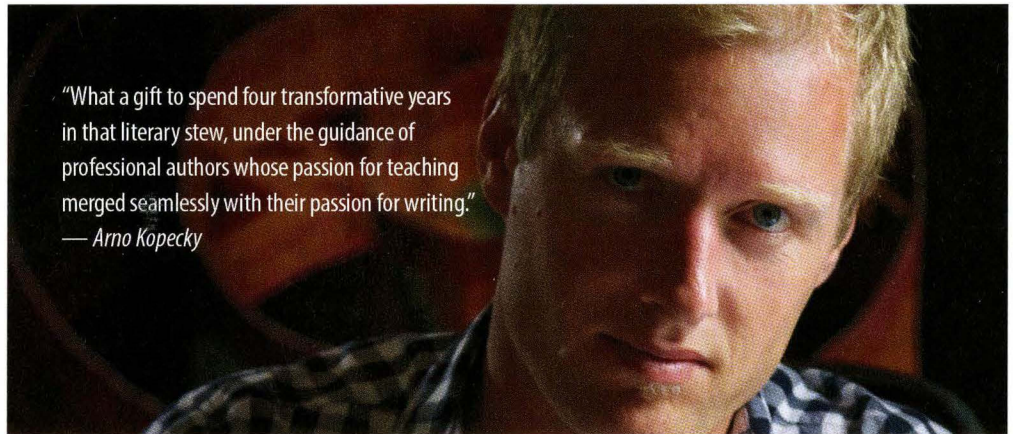
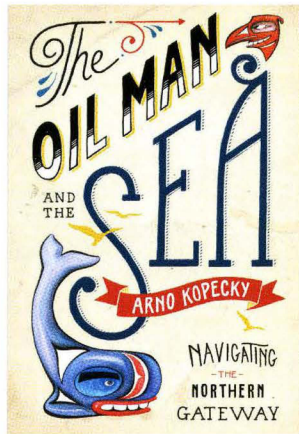
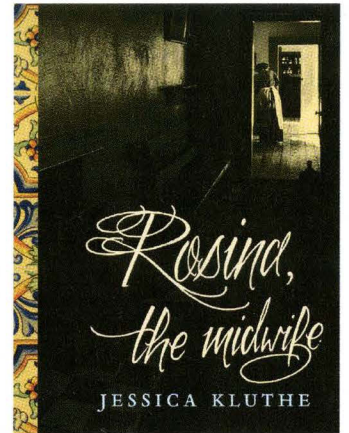
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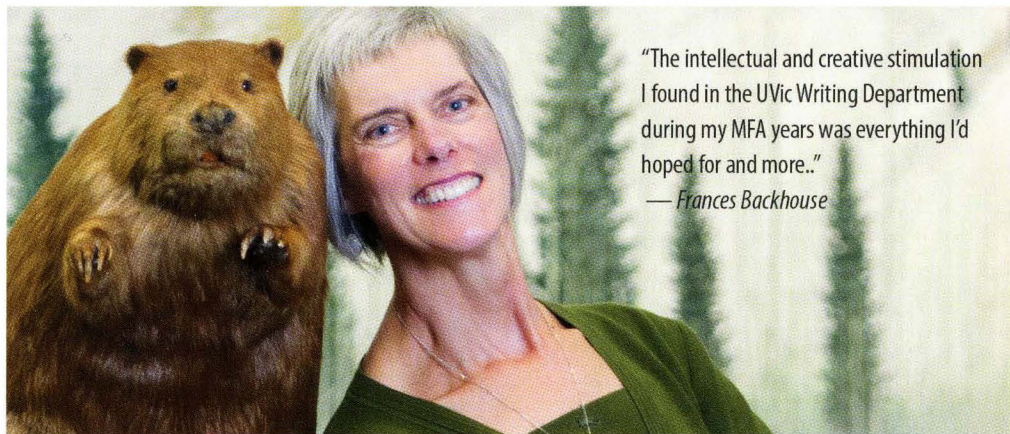
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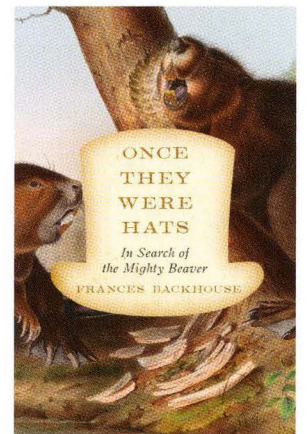
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