Survivors!

One Family's Island Journey to Urban Sustainability

by Erin Barrett

These days, even the most conventional citizens are talking about global warming and the world running out of oil. The defining of "community" and the issue of social and economic imbalance in our country have also been at the forefront, in part thanks to the horrible physical, social, economic and ecological devastation of Hurricane Katrina, the price at the pump and the war in Iraq. Yet, at a time when significant action needs to be taken, our leaders dither and deliberately misinform. Washington fiddles while the world burns.

In Autumn 2005, following Katrina, I decided that since our government was taking a do-nothing approach, I had to "be the change I want to see," as Gandhi and my favorite bumper sticker put it.

So, partially in response to our government's inaction, partly due to a bit of mid-life blues and possibly a very large screw loose, I decided to shake things up a little by going back to school to study ecology and sustainability—as far as possible from my usual life and work as a fun-facts author.

Over the course of the next year, I immersed myself and my family in a wild life-style make-over toward urban sustainability. With not much time in the program, the changes flew fast and furious, as did our sanity sometimes.

Defining "sustainability" isn't always easy. It involves many areas: energy, food and gardening, gas, oil, economy and transportation. But, generally speaking, the idea is

to see all of these different areas as one system, working with (or, in the case of our modern world, against) each other to produce as little waste as possible. Communities that make the commitment to work together toward sustainability also find that this method naturally solves many societal and economic ills by fostering strong and just local communities.

But that's a huge task for one person, starting alone, and one that seemed positively overwhelming to me. Instead of staring slack jawed into space wondering how to tackle it all, though, we decided to do something—anything. We read a lot of books on various topics. We went and saw other people doing similar things. We were like sponges, soaking up ideas, suggestions, and ultimately hope that even one change is a positive step in the right direction. What we didn't understand starting out, though, and what no one told us along the way was that once you start with one thing, it quickly turns into a challenge to change everything.

We started at the obvious place for our collective lifestyle: we cut down our driving. After that, projects and changes began to snowball into a flurry of mania. We bought a couple of biodiesel vehicles that run on processed vegetable oil, began refining our own fuel from recycled restaurant grease, deliberately bought nothing new, built a chicken coop, started beekeeping, learned about our foodshed and watershed, composted, grew our own vegetables, saved water run-off from the roof, began watching our electrical usage, switched to all fluorescents and LEDs, installed a solar panel to supplement our hot water usage and completely turned off the heat that winter.

From a community standpoint, we involved ourselves in local organizations, only shopped at local businesses, supported local causes for biking, business owners, and other groups both financially and otherwise, sold our honey and eggs to local businesses and members of our community, and went from vegetarians back to being meat eaters to support our local, organic and sustainable butcher.

Sound crazy? We often were. Living in a big house on an abandoned naval base, in a small island community called Alameda, plopped down in the middle of the San Francisco Bay, with two teenagers, a young adult daughter and her child, my ex-husband, two Chihuahuas and two cats, my husband and I spent the year swimming up

stream with these projects, all the while maintaining (or, at least trying desperately to maintain) an appearance of normality to the neighbors.

As you might suspect, we weren't always successful.

The chickens constantly menaced us by flying the coop, keeping to the pledge of only buying used items was vexing, particularly to the teens, the garden proved easier in the planning stage than in the implementing (and the planning wasn't that easy in the first place), an allergy to the bees almost killed my husband, our dearest friends were reluctant to come to our house during the cold months without ear muffs and mittens, and the solar panel leaked all over the laundry room and roof. In a fit of rage at the grey water system, I went out and bought a cowboy hat and some kickin' boots to fight back. I also took up a secret and nasty smoking habit to cope, which got stamped out pretty quickly when I realized that rolling my own organic smokes just wasn't worth the split second of euphoria the nicotine offered.

But overall, our adventures were amazing, throwing us all—including the kids—into grassroots activism. Despite being bruised, bloodied and humbled at times, we've become walking, breathing eco-warriors all the while managing to stay not only in tact, but from all outside appearances, a pretty average American family.

The Market

It's heartening how hungry people are for practical instructions on how to make basic changes toward sustainability in their own lives. The reality is the news is frightening: ice caps melting, oil prices rising and wars being fought over oil land, rivers polluted beyond use, species dying, landfills full to capacity, water scarcity. People are now paying attention and wanting answers. The market for books on the topic is growing exponentially as experts come to the same conclusion: We are headed for catastrophe is we don't start making serious changes in our lifestyles and our global policies very soon.

There are quite a few policy books out there. The vast majority of the books on ecology and sustainability are dealing with big picture philosophies and usually on

single-subject issues. Books like *Omnivore's Dilemma* by Michael Pollan discusses the issue of our food system, *Not Buying It* by Judith Levine addresses reducing and reusing, and Richard Heinberg's *The Party's Over* is about peak oil and how to adjust for the coming oil crisis. All of these books I have used for research and continue to use as resources.

What's currently missing from the dialogue, however, are practical guides, experiential stories or basic explanations written simply, clearly and in a plain, easy-to-read context. This is where this book comes in and takes the issues of sustainability from an often-times fringe ideal and places it smack dab in the middle of the mainstream.

Format, Resources & Outline

Written in a humorous and personal style, each chapter takes the reader along for the ride with our family through our experiences—foibles and successes, alike. It also offers fact boxes and sidebar interviews from experts in various fields for a deeper insight and understanding into the issues, in a quick-reference style. Interviewees like Jessica Prentice, founder of the Locavore movement, John Perry, founding member of The Compact, Girl Mark Alovert, author of the open source Appleseed biodiesel processor, Richard Heinberg, author and lecturer on issues of peak oil and energy Power Down, and many others will give knowledge and understanding of their areas of expertise.

Interesting, accessible, intelligent and timely, this book is part of the next and crucial wave of eco-literature to help guide our changing cultural consciousness. Or, in plain terms, it's an enjoyable, easy read about how one American family moved into action and tried to become part of the solution, even if it nearly killed us.

Survivors! has five umbrella sections, each consisting of several chapters.

I. Introduction

- What is sustainability, and why us?

II. Consumerism

- The “Compact”: Our Crazy Idea To Buy Nothing New For a Year
- Of Shampoo and Real Poo: How Purchasing Personal Products Turned Into Extreme Environmental Angst
- Reducing/Reusing/Recovering: The Destruction of a Creative Reuse Center
- Buying Local: They’ve Got An Awful Lot of Coffee in… Brazil.

III. Transportation

- Two Wheels Good, Four Wheels Bad
- How We Became Overnight Oil Magnates (With Used Veggie Oil)

IV. Water/energy

- Going Solar: The Sun Also Rises (Doesn’t It?)
- Spin Cycle: Watching the Power Meter Go ‘Round
- Turning Bath Water Into Rutabagas
- Freeze A Jolly Good Fellow: Turning Off the Heat

V. Food

- Gardening Like Granny
- Ten Chickens and a Coop de Ville
- Killer Bees: How We Learned to Stealthily Steal Honey
- The “Locavores” Challenge

Alternative Titles

The ABCs of Urban Sustainability

Of Bees, Beer and Biodiesel

Livin' Like Granny: An Experiment in Environmental Living

Who Am I?

Over the last decade, I've written over fifteen non-fiction books and pen a daily syndicated fun facts column that appears in papers around the country. Over the course of the last year I've become active in several environmental groups, local and otherwise: Acterra, the Alameda Biodiesel Collaborative, The Compact group, the Locavores and others. I work with the Alameda Point Collaborative, a group of formerly homeless individuals who are working toward a more just and sustainable community in Alameda, California. My work with them is focused primarily on the issue of food justice. I also teach and mentor writers in Alameda, California, where I live with my family on our crazy little urban microfarm.

Chapter 1

O Sting, Where Is Thy Death?

It was all fun and games until the bees nearly killed my husband.

In the late-winter flush of planning out our urban microfarm, getting more bees made a lot of sense. The family had already gotten one hive a year earlier, the result of my husband's early eccentric attachment to self-enclosed mini-worlds like ant farms, HO train sets, and SimCity.

Bees are such a great metaphor for so many things, which is presumably why they keep showing up in literature and why the Mormons adopted them as their role model a century ago. And there's that whole yin-yang thing of simultaneously providing us with the prospect of sweet honey and painful stings.

Jack's hive had yielded an impressive amount of honey and beeswax in its first year. With a few more hives, we figured we'd have more than enough for ourselves and friends, and could perhaps sell some of the surplus at the local health food stores and farmers' markets.

But there other reasons. Some of Jack's attachment to the bees had rubbed off on all of us. He could go out and spend long minutes contentedly sitting next to his hive, watching the industrious little bugs flying out and back with nectar and pollen. I envied his absorption into the whole thing, and wanted to try it out myself. Plus, it fit right into my ideals of sustainability and growing locally. Bees are vitally important for so many of

our foods and ornaments. It's estimated that honeybees are responsible for the pollination of between 15 and 30% of all of the U.S. food consumers eat. Honeybees are the major pollinator for most nuts, fruits and about anything that grows on a vine. Entomologists tell us that without honeybees, two-thirds of citrus and nearly all of the watermelons, pecans, almonds, beans, and strawberries would disappear.

The alarming thing is that honeybees are in trouble. A mite called the *varroa* mite attaches itself to individual bees in the hive and lives off of its blood, creating deformities, and eventually death.

Another common threat to bees is the *tracheal* mite, a nasty little buggar that burrows into a honeybee trachea, slowly suffocating her. Both mites also reduce the ability for bees to fight off infections and viruses, further jeopardizing their future. Both are very hard to control and have taken their toll, particularly on commercial bee populations. So, now, of course, seemed like the perfect time to learn to do it myself.

I sent away for hives and accessories from Dadant, the oldest, biggest bee-supplies merchant in America and spent a long evening inspecting all the cool specialized stuff that came--tools, bee-proof veils, a smoker--and nailing together the hive, frames, and sheets of patterned beeswax that are designed to get the bees to build their combs in straight patterns to make it easy to harvest the honey with a minimum of damage to the hive and its inhabitants. Not to content with the basic white of my husband's hives, I picked out a pollen-colored paint that was light enough to reflect the heat of the sun while adding a little color to the bee-and-chicken yard.

I got the bee spirit and I couldn't wait to begin. So much so, that in talking up the bees, I managed to convince the leader of a local youth gardening group to get her own beehive for the low-income kids she worked with. We ended up making some deeply

enriching connection with her and the teens in the process of acting as advisors. But that's another story. But it was too early. This was February in the San Francisco Bay Area, and spring was beginning to blossom. Even though Jack's bees were already out and busy, I discovered that buying bees from a bee supplier couldn't happen until the end of March.

Or so I thought. As the date approached, the bee supplier in Vallejo, an hour away stopped returning communications. Reaching them by phone finally, I got the bad news: the late rains had flooded their beeyards. They weren't going to be selling any package bees this year.

Scrambling for a replacement supplier wasn't easy. The late rains hadn't done any of the hives in Northern California any good. Finally, we found one in Glenn, California, two-plus hours away. On the appointed day we made the drive and picked up two flimsy boxes of wood and metal screen—four pounds of bees, or about 32,000 of them, and a queen.

They'd die in the enclosed, heated space if we put them in the trunk, so they rode in the passenger compartment with us. "Let's not have an accident, eh?" said Jack as he started the car. I was admiring them, their deadly beauty. Stingers, yes, but an amber-colored body and gossamer wings. The boxes buzzed with their energy and hope for spring. Either that, or they were pissed off and trying to get us.

Honeybees are not native to California. In fact, they're not native to the Americas at all. In the Old World, honeybees have been part of human life since prehistory (a cave painting in Spain from about 7000 BC seems to show people robbing bees for their honey). However, they didn't make it to North America until English settlers carried them here in the 1620s. Although swarms escaped their human handlers and headed west,

they didn't make it to California until 1853 when botanist Christopher Shelton transported hives from the east.

That evening I rechecked the steps of installing the bees and, calming myself, got into my bee suit--the white coveralls, the gloves, the hat and the veil. I lit the smoker, filled a spray bottle with sugar water, and headed out to the bee hive with my 32,001 bees.

I could tell you about how do it, but suffice it to say that there's a lot of shaking bees into the top of the hive. It scared the crap out of me. Luckily, the bees were pretty sedate and demoralized from being boxed up and sprayed with sugar water. While they seemed to welcome the nourishment, they likely didn't appreciate having their wings temporarily stuck together and inoperable, no matter how sweet it was to lick the sweet liquid from themselves and their fellows. Following the directions, I had hung the queen inside the hive inside her small cage with a sugar plug. The idea is that the bees will become accustomed to her and the new hive before they get around to freeing her unhurt. Then the shakin' began. I turned the box upside down and with some short, severe shakes got about 3 out of 4 the bees inside the open hive. Then I set the box down in front of the hive opening, knowing that the stragglers would find their way to their new home before dark. I finished up and stuck some grass loosely in the entrance. The idea of that is to keep them in for the night, and then have them explore the changes in their surroundings the next morning when they'd settled in.

I wasn't stung, I was relieved to note as I took off my bee suit. In fact I got stung only a few times that season, and all after my fears had dissipated and I was working barehanded.

Jack, on the other hand, had two hives and a fairly cavalier attitude about getting

stung. He was the first to start working without his gloves, so he would occasionally get stung. It didn't happen that often, but apparently it happened enough to eventually trigger a severe allergic reaction.

Allergies are funny things. I still don't completely understand them. Being exposed often to something can decrease the allergy, or increase it. In Jack's case it increased it, and rather dramatically. One day he had been doing some work deep in the hive and gotten stung twice in quick succession. He was holding one of the heavy hive bodies and couldn't immediately scrape the disembodied stingers off. (When bees sting, the stinger and venom sacs rip off their body and they die; the venom sacs continue to pump venom into its victim for another 30 seconds.) By the time he had quickly gotten the hives reassembled and gotten into the house, he knew something was going very wrong. He was pale and he said, "Something's not right, and I taste metal."

I could blame this all on him, but truth be told, by the time he asked me if I could drive him to the hospital, I already had my keys in hand and was yelling, "Go, go, go!" Never drive someone in anaphylactic shock to the hospital. I'll say it again: never. Why? There are several reasons, most of which we covered in full during our emergency.

Jack was doing okay until we got about a mile or so from home at which time he started feeling more severe itching in his groin and torso. He dialed 9-1-1 and let them know he was on his way to the hospital. They had enough time to ask him why we were driving ourselves. Well, of course, because we're only a bit over 4 miles away. Why not? "It's probably quicker," he had a chance to say before he lost cellular contact with the operator—a major part of modern technological life here on the island of Alameda.

Reason number two for not driving to the hospital with someone going into shock: Timing. On a stretch of land no bigger than one by four miles with 80,000 inhabitants, we

have a number of schools. Public schools alone: four high schools, three middle schools and something like a bazillion elementary schools. That's a lot of schools letting out a lot of kids all at the same time. Despite Alameda's small size, 90%—or so it seems—of kids get rides to and from school. Traffic was heavy as we winged our way to medical help.

We pulled up to the first school crosswalk filled to the brim with high school students and a police officer. I rolled my window down and said, "Husband's been stung. He's allergic to bees." Without blinking, the officer held the pedestrians and we whizzed on through.

We skirted the elementary school down the road well enough but as soon as we passed it, Jack pretty calmly let me know that his vision was fading. "Should I call my daughter?" he asked. "No!" I barked. "Let's not worry her right now." His daughter, Elana, had a six month old baby at home with no car. I knew she'd panic with no way of coming to help.

Jack sighed. "Tell her and your kids how much I love them." His head slumped onto his chest.

His breathing was normal but shallow. We kept barreling along the 25 miles zone streets at about 40 heading for a major intersection, still another two miles from the emergency room. The light was turning red, and cars were already stopping ahead of me. Quickly checking the rearview mirror, I swerved into the right lane and looked carefully before gunning through the light.

Jack had apparently come to long enough to say, "Good work," but was out again immediately after.

Funny how crisis brings out a side of you that you never thought was there.

Imaging a situation like this even before we got bees, I'm not sure I would've seen myself calm in the driver's seat, but there I was, breaking all laws (although carefully checking around me) to get help, and still managing to not blubbering senselessly over the immediate circumstances. That was yet to come.

A half block down the road I looked to the side and noticed that Jack's breathing was more feint and his chest was shuddering. I called 9-1-1 while still driving and promptly lost them again. Jack stopped breathing just as the emergency operator called back again and told me to pull over. I did, and then promptly fell apart. The operator talked to me, calming me down and instructed me to get him out of the car, lay him down flat, elevate his feet. The phone signal went out yet again.

In my defense I tried my best to do as the operator had instructed me through sobs and shakes, but as soon as I went to lift him out of the passenger's seat, he began to breath, and, true to form for Jack, he also began to fight me. Deliriously. At that same moment, I heard the sirens coming up the road. Despite the constantly dropped signal, they'd managed to track us during our mad dash to the hospital.

The emergency workers blessedly stepped in and took over. Relief. Pure, unadulterated relief set in two miles from our destination—three miles from home. When they lifted Jack into the ambulance with an I.V. of antihistamine, saline and something else for shock, I grabbed the first, big, burly EMT I could find and hugged him to me, weeping.

Before the ambulance doors shut to make the remainder of the short trip to the emergency room, a faint voice came from the cavern of the ambulance, "Hey, watch it, buddy. That's my wife."

Needless to say, Jack's not-so-pleasurable "little death" as we now call it, took some of the fun out of the hobby of beekeeping for both of us. Strangely enough, though, we decided to keep the hives. Jack went to the doctor and got several EpiPens and two kinds of antihistamine in case he had an anaphylactic reaction again. He upgraded his bee suit and gloves, and started working the bees again. He hasn't had to use his EpiPens, knock wood, and we had a huge harvest this year. Our surplus beeswax has been made into sweet smelling candles to get us through the darkness of the winter, and we've used the honey for everything from baking bread to brewing beer to making mead, even having enough to give away and sell. As we move into the rainy winter days, the bees have settled in to wait out the weather and be on vigilant watch for the first signs of spring. We can hardly wait for it all to begin again.

The Buzz on Bees

• Bees have a great sense of navigation, finding their way several miles to a particular stand of flowers and back home again. On their first midday flights, they make exploratory flights in ever-widening circles as a way to memorize the way home. Not long after, they're flying up to three or four miles away from home, using the sun and a keen sense of smell to keep track of where they're going and how to get back. If they find a great cache of blooms, they can communicate the general direction, distance, and scent to other bees using what's called the "waggle dance."

• In a single trip, a bee will visit dozens of blooms, all within the same species. This benefits the plants more than the bees in that it makes sure that the pollen that sticks to the bee goes to other blooms that can actually use it. The bees most often collect a frustratingly small amount of nectar from each bloom, but also sometimes pollen, which

acts as a protein-rich food for the hive's brood larva. The pollen goes into sacs on the bee's legs; the nectar, into a first stomach that is used only for carrying, not digesting. At the hive, most of the nectar gets regurgitated from that stomach into honeycomb cells; if hungry, the bee can transfer some of the nectar into its second stomach, which actually digests it.

• In the beginning, though, after spending three weeks in egg and larval stage, the bees emerge as adults, ready to go to work. For their first eight days, they take care of the eggs and larva before graduating to gathering pollen and nectar as field bees. While they can live for several months during the winter, worker bees pretty much work themselves to death during the honey flow of spring and summer, living a work-filled life of about six weeks. (The queen bee, who spends her summers laying a thousand eggs a day, can live for years.) A healthy hive can typically contain 20,000 bees during the winter, bulking up to perhaps 80,000 in the summer.

• The combs are made from a wax that flakes off the bodies of the bees. Worker bees collect the wax and form it into hexagonal cells just big enough for them to get their bodies into. Those cells are useful not only for honey storage, but also for storing pollen. Furthermore, they are the right size for larva, sealed up in the cells by their nurses to develop to full size. Finally, they're also the right size for adult bees to take a snooze in. They crawl in head forward, their backsides barely protruding from the cell opening, and later emerge refreshed and ready to get back to work.

• In the hive, evaporation condenses the nectar into honey and then the bees seal it up into the comb with more wax into the comb. Some of that will be used during the winter when there are not many blooms available and it's often too cold and rainy for the bees to leave the hive, but much of it is surplus that people can take without hurting the hive.

A good colony can collect more than a hundred pounds of surplus honey per season, but a single bee, working tirelessly, might collect only a tablespoonful of honey as its total lifetime achievement.

• Worker bees are sexually undeveloped, but all of them initially had the potential to have become a queen. When a queen is failing, or a hive is getting overcrowded and considering dividing into two, brood workers start creating peanut-sized queen cells. They select a developing larva and seal it into the larger cell with a generous dollop of royal jelly, a secretion from glands in the heads of the worker bees. Royal jelly speeds the larva's development--in 15 days, a larger, sexually-developed princess bee emerges. She stings any rival princesses to death before they can emerge from their cells and then flies, mates with as many drones as she can, and then returns to the hive. If the present queen is failing, the newly-mated princess will hunt her down and kill her, taking her place as queen. If the problem is that the hive is too small, the new queen will attract several thousand bees and split off with them to find a new hive. These are the swarms that you sometimes see, usually in the spring. Although they look scary, they are actually just looking for a new home and almost never attack people or sting.

• Honeybees almost never sting when they're away from their hive. Unlike most stinging insects, stinging kills the individual honeybee--it actually rips their hind end off their bodies--so they do it as a last resort only when they believe the hive is in danger. So, unless you're actually molesting their hive, they will usually leave you alone." In fact, many beekeepers "work" their hives without protective clothing, figuring the occasional sting now and again won't do them any harm. Life-threatening honeybee allergies are actually quite rare, resulting in about 20-50 deaths in an average year; except when magnified by fear, the actual pain of a bee sting is relatively minor, comparable to getting a shot or a blood test.

End.