

Bioremediating New Orleans 4, Doing It!

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By Starhawk

Yesterday was the day to finally do it. We arrived at the Common Ground office called The House of Excellence to find our biobrew air pump had been shut off sometime in the night. The brew needs air constantly bubbled through it to remain aerobic and full of beneficial bacteria. If the air goes off, it can go bad and become toxic. Our dissolved oxygen meter doesn't seem to be working, so Juniper and I resorted to more intuitive methods—smelling and tasting. It seemed fine, and we decided to go ahead and use it.

We organized ourselves into teams. Our team went down to the lower Ninth Ward, to continue work on the women's house and the small yard in front of the blue house.

Other groups went to the garden, a second site in a different area of the city, to the garden to get tools, and Juniper went off to take soil samples.

Our first task, before leaving the House of Excellence, was to empty our fifty-five gallon barrels of brew and transport it. We bucketed out one barrel into blue, six-gallon never-used gas cans, washed it out, and refilled it with tap water. We ran out of gas cans at that point, and left the other to continue bubbling, while we put air stones and hoses into the clean water to start pumping air through. Before we could begin a second brew, we needed to let the chlorine from the tap water off-gas, a process that would be hastened by the extra air.

Then we loaded the gas cans into Charlotte's van. Unfortunately for Charlotte, her van is also her bed, and one of the cans leaked biobrew onto her bedding. I thought she was remarkably nice about it. At least she won't be lonely at night—with all those beneficial bacteria to keep her company. She did say, however, that she would hang the bedding out to dry.

At Miss Eva's house, the big piles of garbage had been taken away the day before by the city, and it was pleasure to arrive and see the yard and entrance mostly clear. All up and down the street, big mounds of sticks and rotting drywall and ruined possessions still sit in front of houses that lean at crazy angles, slipped off their foundations or in the process of collapse. But Miss Eva's little brick house stands sound, and we grabbed forks and began to turn the soil in the yard to aerate it. With several of us working, in gloves and rubber boots and masks to protect ourselves from potential toxins, the work went fast. I loaded the biobrew into a watering can, and followed behind, spraying it into the soil to inoculate it with the beneficial bacteria that can break down fossil fuel residues.

Our plan for this house was to use several different methods of bioremediation in

concert, to deal with the cocktail of toxins the EPA data for the neighborhood told us might be present.

Some toxins, like diesel range organics, are big, chainlike molecules mostly composed of carbon, hydrogen and oxygen, and can be broken down into harmless substances like carbon dioxide and water. Beneficial bacteria can do the job, and so can enzymes released from fungal mycelium, the underground weblike matrix from which mushrooms emerge. We intend to do some trials with mushrooms, but it's harder to grow mushrooms on a mass scale than it is to culture bacteria, so we're starting with the brews of aerated compost tea. We're also using a different preparation of micro-organisms, known as Efficient Micro-organisms or Effective Micro-organisms, which is anaerobic and has many different uses. The house-gutting crews have been spraying it to counteract mold, with great effectiveness. They've had assistance from someone who does professional mold abatement and who has the equipment to do spore counts before and after. The bacteria and yeasts in the EM spray eat the mold spores and then colonize the surfaces mold grows on, preventing its regrowth. It's non-toxic and much safer to use than bleach, and more effective. It's success against mold has made me wonder if it would also be effective against Sudden Oak Death, the fungus-like disease that is devastating our forests in Northern California. The company that produces EM, and has donated a lot of it to Common Ground, has offered to bring a mobile processing unit down to New Orleans to produce it on a mass scale. But they have been unable to get the funding—nearly \$200,000—they need in order to do so.

EM is mostly anaerobic—the organisms involved do not need or want air in order to reproduce. We're also experimenting with EM sprayed on the soil, to see if it will help get life back into the dead, compacted, muddy sediments.

But there are other toxins that don't break down. Heavy metals: lead, arsenic, cadmium, mercury and more, are elements. By definition, they are already substances that cannot be broken down into anything smaller—except by nuclear fission which is a bit beyond our capacity and doesn't exactly fall under the category of 'bioremediation.' Heavy metals can be taken up in the bodies of plants and certain mushrooms (which then need to be disposed of as toxic waste) or sequestered—immobilized in the soil.

The catch is that different heavy metals become more soluble in different soil conditions. (And if you want more technical information on all of this, I promise to write something up and get a link posted on my website by March 1.)

We suspect that this soil may have both arsenic and lead in it. Mustard greens will take up both arsenic and lead, but under different soil conditions. It's late to plant them in New Orleans, and we can hope for at best one crop before it gets too hot for them to survive. So we've amended the soil to favor the uptake of arsenic and bind the lead.

We're looking for sources of brakefern (*pteris vitatta*) which is an excellent accumulator of arsenic, and will hope to plant some later. This will be a long process.

So I spend my last two days in New Orleans digging, spraying, mulching, and slinging around heavy buckets of water and biobrew. And then meeting to plan how this project will carry on. At our final meeting, a young woman turns up, Yarrow, fresh from a forestry degree in Humboldt State. She volunteers to learn to propagate ferns from

spores. And Toby, the mushroom man, who has vast experience at propagating spawn and the equipment to do so, springs up like a fruiting body appearing suddenly after a rain. Our crew of brilliant and beautiful young women, Emily, Jen, Randy, Bronwyn and Rain, awesome organizers and researchers whose mothers are younger than I am, take charge of different aspects of the plan. And yes, there are some wonderful young men and older women involved, as well. And more, some underlying force of health and life and serendipity that we tap into when we do this healing work. There's an excitement, a sheer raw energy unleashed that animates the digging forks and keeps us working joyfully and eagerly into the twilight. It's as if the earth herself wants to be healed, and when we take on that work, we tap into an upwelling spring of life giving power. Out of nowhere, benevolent allies appear.

In front of the house is a large shrub that at first looks completely dead, covered with a thick layer of dust, strewn with plastic and the flotsam of the storm, an old boot wedged in its trunk. But as we take the garbage away, we notice little tops of green emerging from its branches. In spare moments, I've cleaned away the debris, pruned it back, mulched it with rotted wood chips and given it extra doses of the biobrew. Each day the green is stronger.

Now, leaving New Orleans, that bush seems an emblem of our work. On the plane home, I finish Jared Diamond's *Collapse*. In New Orleans, amidst the miles of ghost towns, the unreconstructed ruins and continued mismanagement, we can see what the collapse of our society looks like when it has begun. Like those little peeping tips of green, we can also see small signs of hope, of what might grow out of the sediments.

Our efforts, the whole growing Common Ground project, show what people can do without government support of resources. And yet the scale of this disaster demands a response far beyond anything we can do on a lesser scale. I put down *Collapse* and pick up Mike Tidwell's *Bayou Farewell*, a beautiful description of his journey through Louisiana's wetlands, which are rapidly disappearing because Mississippi flood control measure have starved them of the sediments that counter the sea's advance.

Louisiana loses an acre of land every thirty five minutes! With the vanishing wetlands and barrier islands will go a huge proportion of our migratory birds, sealife, a unique culture and way of life, and the only truly effective protection for New Orleans from future storms. Every 2.5 miles of wetlands and barrier islands reduces the storm surge by a foot. When New Orleans was founded, vast marshes and chains of islands reduced the impact of hurricanes. Now, as hurricanes intensify and the ocean rises with global warming, that protection is dissolving.

The good news is that a plan exists to address this problem, a plan that everyone from environmentalists to oil companies agrees upon, and has actually been adopted by the Louisiana legislature in 1998, the Louisiana Coast 2050 Plan. It would divert water from the Mississippi upstream from New Orleans and bring it to the wetlands areas, allowing the river to flood in a directed fashion that would rebuild sinking lands and restore barrier islands.

The bad news is that the Federal Government has yet to fully fund the plan. It is estimated to cost 16 billion dollars over two to three decades—a fraction of the cost of Katrina's damage, or of the ongoing cost of war. No community-based effort, no bunch

of college kids on spring break with shovels, are going to do this. It needs a commitment on the scale only the Federal Government can provide.

So I will end these reports by asking you to do something. Contact your representatives. Tell them three things:

We need to stop the FEMA hotel evictions of Katrina refugees and fund and create programs to bring them home.

We need to protect the city with levees designed to withstand a Category 5 hurricane.

We need to fully fund the Louisiana Coast 2050 Plan, and begin implementing it.

Thanks to all of you who are supporting this work, -- *Starhawk*

Coalition to Restore Coastal Louisiana: <http://www.crcl.org/>

To send an email message to Washington: <http://healthygulf.org>

Starhawk is an activist, organizer, and author of *The Earth Path*, *Webs of Power: Notes from the Global Uprising*, *The Fifth Sacred Thing* and other books on feminism, politics and earth-based spirituality. She teaches [Earth Activist Trainings](#) that combine permaculture design and activist skills, www.earthactivisttraining.org and works with the RANT trainer's collective, www.rantcollective.net that offers training and support for mobilizations around global justice and peace issues.

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