

## Care of Earth and Energy Efficiency in our home (2 locations):

We moved to the Granville area in October 2013. Before that, we had lived in Columbus for 20+ years. We lived in Clintonville during most of that time. Here is a list of things we did at that location to address energy efficiency and “care of earth”:

### Energy Efficiency:

- When we chose a new furnace, we selected a high efficiency (95%) natural gas furnace that had 2 stages. That way, during normal times we were able to operate at the lower energy useage rate, and had the capacity to “step up” when it got really hot or cold outside and we needed to boost air to the 2<sup>nd</sup> floor.
- We installed a gable fan in the attic, to clear hot air out; the thermostat was set to 80 degrees, so that the fan started automatically when it got that temperature in the attic space.
- We hired an insulation company to put a deeper layer of insulation in our attic, to increase the R value of what we had there. We chose a product made of recycled newspapers, so that there was a use for a material that would normally end up in a landfill.
- We changed out all of our lights to CFL; as bulbs burned out, we got rid of the incandescent bulbs and replaced with CFL. This took a while, over the course of months.

### Care of Earth (water useage, etc.)

- We had our house/yard certified as a nature habitat, per the guidelines of the National Wildlife Federation Backyard Habitat program. We provided food, shelter and water for birds and other wild creatures, year round. We had a natural growth oak forest around us, and we saved seedlings from those trees and planted trees around our neighborhood and at our church, to replace those lost through storm damage or old age. We also developed our church yard (2 acres approx..) to meet the same guidelines for a Backyard Habitat. We planted many trees on that property that were Ohio native, and whenever possible, we added food-bearing Ohio native species in our yard at our house. The church yard was later also certified as a wildlife habitat.
- We decreased the amount of lawn at our house, in increments. The first year, we established a large garden bed at the corner of our property and drew wider lines around trees. These areas were planted with more Ohio native species of plants and were heavily mulched, to retain water. We had the lawn core-aerated, to increase water retention capability, and we overplanted with more drought tolerant grass species. We fertilized the grass 3x a year and omitted the step where we were adding pesticides to the grass; often we used a compost called Nea Compost instead (this is a horse manure compost that resulted in a very green lawn).
- After we started doing dog rescue/foster in our house, over time, the small amount of grass left by the garden beds in the backyard was worn very thin. We finally gave up and brought in a truckload of tree trimmings from a local tree trimmer and covered the whole yard with wood chips (free!).
- We installed a very water efficient toilet in our downstairs bathroom; this used a fraction of the water compared to our other toilets and was the most often used (the other two were upstairs, mostly used at night and early AM).
- We installed water efficient shower heads in the two showers.
- We had several very large (80'-100') old growth oak trees on our property. We gathered 100 bags of oak leaves every year and composted them. We added our household vegetable matter + coffee grounds, tea bags, eggshells, etc. We traveled around the neighborhood, gathering green garden waste to add to the compost. Steve turned the heaps (3 of them) during the winter. Every spring, we had barrels of rich finished compost which we used for our garden beds, and later, for the church garden

beds. Adding compost to garden soil adds rich nutrients and makes the soil able to retain nutrients and water more easily.

- We have been recycling since 1999; we recycle all plastic, metal, paper, and tree leaves/garden waste.

Our current house, 8 miles north of Granville (we are in Newark's McKean township):

#### Energy Efficiency:

Utility costs here are sky high; we are Energy Cooperative customers for both electricity and propane. Natural gas is not available here. When we arrived, we had two furnaces – an aging propane furnace and an electric heat pump. We were totally shocked at the cost of utilities here, especially our first winter. These costs actually threatened our family's sustainability and were a much larger per cent of our budget than they had been in Columbus. Therefore there was a HUGE incentive to find more energy efficient ways to manage our home. This became our major goal, again, spurred as much by economic motives as by our moral concerns regarding climate change/care of earth. Added to this is the reality that the winters of 2013 and 2014 were some of the coldest on record for at least 40 years. We arrived just in time to experience this with all of you – lucky us!

- Our first action was to replace the aging propane furnace. This decision was necessary. When we had our first inspection by a local HVAC vendor, he was unable to produce sufficient pressure to run the furnace, which meant there were leaks somewhere (i.e., carbon monoxide). Since this threatened our life and safety, this was a no-brainer. We had a new furnace installed 2 days later. We had moved in one month earlier, during warm weather, and now it was Thanksgiving, and we couldn't turn the furnace on. We chose the most highly energy efficient furnace available through that vendor. It was installed the day before Thanksgiving, 2013.
- We had an energy audit done by Energy Cooperative. They did a blower door test, which assesses your air-tightness of your insulation and seals around doors and windows. Our results were not bad, in fact reasonable, but there was a lot of room for improvement. We did every single thing they told us to do and then a few more steps. All of the energy providers (i.e., AEP and Columbia Gas) offer energy audits to their customers at a rate that is usually in the range of \$90-100, which is a good deal.
- The first and most obvious improvement was insulation. We solicited quotes and ended up hiring Mooney and Moses out of Columbus (we tried calling local vendors first and no one returned our call!). They added insulation in our roof first, and brought that to a very deep level, and higher R value so we would not lose heat out of the roof joists. They returned a second time to install insulation in the floor joists under the first floor (our dog rescue operation is in the basement, so this also made the basement less cold). Our basement ceiling is very high, and we have a walk-out door on the west end. The walls are a kind of concrete brick/stone, and there is good insulation in that part of the wall. The higher part, right under the floor joists, was not insulated, so this prevented a large source of cold air from coming in. The basement stays cool all summer, regardless of high air temperatures because of the earth protection by being underground.
- Steve changed out several most-used light fixtures to LED in the kitchen and living room. He also covered less used electric sockets, especially those on outer walls; you could feel cold air coming in through these, because of insufficient insulation around where the sockets were installed.
- We covered a few of the windows on the west wall (where most of the bad weather comes from) with plastic, to provide an extra layer of insulation from the cold.

- We made draught excluders from blankets, to lay in front of the walk out door in the basement, and for the back door that leads to our deck upstairs. We replaced the weather stripping around all the doors and door sweeps on the bottoms of the doors.
- During the coldest winter 2013 and 2014, we even closed up the outlet for the electric dryer, because so much cold air was coming into the dryer (it was as cold as the refrigerator inside the dryer some mornings!). Basically, we were trying to find any sources of cold air leaks in our house and plug them. We have a large 72" wide Anderson door unit and at the coldest part of last winter, we hung a king-sized bed quilt across the window, to absorb some of the cold. We definitely felt like we were hibernating.
- We also kept our thermostat at 65 degrees; the basement is always 6-8 degrees colder because of the stone walls. We cannot afford the cost of utilities at a temperature higher than this, so we simply dress warmer and keep the heat a bit lower to manage the cost.
- We did research on the best new electric furnace since that also was aging and I hated the loud sound and cold air that came out of the vents. After careful research, it was clear that the single most efficient type of furnace was a geothermal unit (i.e., ground loops dug in the ground and heat-exchanging to produce heat for the home). These are also called "ground source pumps"; these are one of the very best choices for Ohio. By the time we made this choice, I had attended several Licking County solar cooperative meetings, and one of the members there had a geothermal system and was also looking at installing a solar array at his house. He was instrumental in steering me towards the best system. After we got a quote from Federal Heating and Cooling (Dresden, Ohio), he reviewed the quote for us, and suggested some changes to the type of equipment we actually purchased. We also switched out our old propane water heater (also aging) to an electric water heater that worked with the geothermal system to pre-heat the water, so we would save electricity there also. We had our geothermal system installed in September, 2014. We had been here 11 months at that time. Our decision to do this was based on both economic reasons and moral reasons. Our system was the best solution to our economic problem of needing a reliable, lower cost way to heat our home (so we wouldn't die of exposure during the winter!!!) and one that was better for the environment. We are still using electricity to run it – but we are using it more efficiently AND we reduced our direct reliance on an expensive fossil fuel – propane.
- We also had a backup generator installed for times of electrical outage. This is an 11KW system that runs on propane. It is now our only use for propane, so we have used only a few units of propane for the past 1.5 years. We are still using the tank Energy Cooperative delivered in early September, 2014. Our energy bills have been cut in half, and we have been warmer than we were in 2013 winter, and the payback for the geothermal system is estimated to be 3-5 years, based on energy savings and a 30% federal tax credit, plus a credit from Energy Cooperative for installing energy-efficient equipment.

We've continued in the current period by doing a number of things that reduce our electric use:

- I do a lot of laundry for the dogs, mostly towels and fleece blankets. I air dry the towels inside during the winter (because I run a humidifier to keep the moisture level to use heat better; by air drying the towels I have to run the humidifier less and I use the electric dryer less). In warmer weather, I just line dry the towels outside. I also rack dry sweaters, bath towels and heavier jeans, again to reduce the amount of energy we use for the dryer.
- We've just replaced the remainder of our lights to LED. At the moment, 60w bulbs are available at Lowe's for about \$2.50 each, so I just bought about 45 bulbs (packs of 3 were \$7.38 recently so I bought 15 packs) and changed out every light fixture.
- We replaced our very old side by side refrigerator/freezer with a more energy efficient refrigerator and also bought a more energy efficient chest freezer for the basement. We are still using an older

refrigerator-freezer downstairs, but we turned the freezer part off, so it is functioning just as a refrigerator at the moment.

- We bought a very energy efficient washer when our old washer died last year. This washer also senses for water levels, and only uses as much water as is needed to wash the particular load of clothing. There are temperature options and we use the coolest temperature of water needed for that load.
- I also have made my own laundry detergent for the past two years, out of locally available ingredients: washing soda, borax, and Naptha Fels bar soap. I make large batches in a plastic kitty litter bucket and the batch lasts for months. I am only on my 2<sup>nd</sup> batch, and it has been over 2 years. This laundry soap works well, and it contains only natural ingredients which do not send phosphates into my septic tank (which is a 4-step leach system that goes into the ground).
- I attended the Ohio Business Energy Conference in Columbus February 16-17, 2016. I went for multiple purposes: as a homeowner, voter, member of a solar cooperative, and member of a progressive church that is discussing climate change, energy efficiency and the ways in which those concerns also impact social justice concerns. I am preparing notes on what I learned at that conference to add to the knowledge base developed out of those church conversations. These notes about what we have done in our home are also part of that knowledge base.
- I also subscribe to Midwest Energy News, as an email digest of current issues in energy, so that I can be a better informed voter about energy issues.

#### Earth Justice/ Food Justice/Animal Justice:

Pretty much our whole 5 acres is dedicated to these principles/concerns. We purchased this property with the intention of better housing our dog rescue/foster operation. We also came because we wanted to expand our food production capability. We managed a small garden in raised beds at North Church on Henderson Road in Columbus for 3 years. We donated the materials to start the garden in what was unused space at the church and assembled 8 raised garden beds in the spring of 2010. We managed this garden for 3 seasons at North Church.

Our original intention was to raise food for the food pantry in which our church participated. 6 churches worked together to open and run this food pantry in St. Paul's UCC church in the German Village district in Columbus. We soon realized, however, that it was difficult to match the harvest with our turn to operate the food pantry AND ... a lot of the clients of the food pantry had no idea what to do with fresh produce. They did not know how to cook it! So we changed plans and instead sold our harvest to church members on Sunday mornings. Steve and I attended the early service and then went outside to harvest whatever produce was ready at that time. The church held a Harvest Table and we would put produce on the table and it was an honor system, and all proceeds went to the Food Pantry. We estimate that this effort reaped about \$1,000 per year for the Food Pantry AND provided the community with a source of delicious, VERY local food (it came from right outside the church where they were attending).

I really wanted to expand on this concept – that of providing good quality local food – and I knew that I could handle a larger garden. Once the initial work of preparing the beds is done, and they are adequately mulched, it is easier to manage the garden.

Here is a list of steps we have taken to convert our property to respecting care of earth, food justice, and animal justice (our dog rescue/foster effort).

- Our first year here, we established a garden that was about 2500 s.f. – about 36' x 70' – and we planted about 2,000 s.f. of that. Our goal was to produce enough to feed our family plus have some to share

with others. We more than met that goal. I canned 100 quarts of tomatoes, another 15 of pickled beets, and another 15 of pickled summer squash. I filled the freezer with green beans, squash, corn, kale. I sun dried sheets of San Marzano tomatoes, for use in a variety of dishes, but most especially homemade tomato sauce.

- We also planted a number of perennial, food-bearing plants: cherry trees, hazelnut trees, blueberry bushes, 3 Concord grape plants, and we cultivated a small patch of raspberries already here when we arrived. We added a Save the Bees garden, and established an herb garden right in front of the front porch.
- We are developing the property using basic permaculture principles, and every new aspect we have added must first meet the criterion of fitting in with the whole plan.
- We set up 2 rain barrels against the house in 2014, with a 3<sup>rd</sup> barrel downhill to receive gravity overflow water from one of the down spouts. We hand carried water to the garden. We mostly watered this first garden with rain water and used our well only occasionally. I estimate we captured about 1,000 gallons of water from our roof, so we didn't overuse our well and the local water table.
- We put a new roof on the house in March 2015, partly because the roof was nearing the end of its' useful life but also because we read an advisory bulletin for people contemplating using rainwater from their roof – that they did not recommend using rain water off a roof lined with asphalt tiles because of possible contaminants. We chose instead, a metal agricultural panel, and hired an Amish family to install this roofing. We love it, and love the way it works and looks. It was much cheaper than an asphalt tile roof, and we believe, better for the environment. This material had the additional feature of being able to be laid right over the top of the asphalt tile underneath, with an underlayment above. We added an additional layer of external insulation over the top when installing it, making it more water proof AND better insulation.
- We expanded our use of rain barrels in 2015, by purchasing three larger rain barrels (214 gal, 600 gal, and 65 gal). We then moved three 50-gal rain barrels to the top of the garden, so we could pump water from the rain barrel near the porch, out 132 feet to the top of the garden, and then gravity flow it to the rest of the garden. We did not attach the 600 gallon tank to the down spouts in 2015. It rained torrentially through spring 2015, and then became quite dry for the remainder of the summer, so we used our well a bit more than we had the prior year to water our lower garden extension. Still, we collected over 1,000 gallons from our roof. We expect to hook up the 600 gallon tank spring 2016, and will be mostly watering our expanding garden from rain water.
- We expanded the garden at the end of 2014, to over 4,500 s.f. (36' x about 135'). We used cover crops (winter rye, buckwheat, some clovers), comfrey plants to enrich the soil.
- We planted WAY more than we needed for ourselves, but I was not ready to commit to being present for a farmer's market. So all of the extra produce during 2015 was given away to Licking County Food Pantry in east Newark, to Salvation Army, to the Sparta Restaurant, and to United Church of Granville for various dinners, brunches, etc. We gave away over 500 lbs. of produce through these venues. We also sold extra plants I started to raise funds for the Baptist Youth Camp and then tomatoes in the fall to raise funds for Lunches on the Square.
- In 2016, I plan to expand my produce either to a local farmer's market OR to a small CSA share garden plan.
- In response to a prophetic conversation with a local beekeeper (Stanley), we invited him to house bees on our property and we ended up with 4 hives on our property for 2015. In response to our new visitors, we hired a local farmer to plow up 6,500 s.f. of our front yard and we planted a pollinator garden with several mixtures of seeds, to provide food for birds, bees, and butterflies. We also began to plant small patches of cover crops that are good for bees in other parts of the property. In 2015, we planted a buckwheat patches in batches, so that we kept flowering plants going all summer. We added

a 2<sup>nd</sup> patch in another part of the yard in the fall, and are preparing to add a couple of additional patches in the spring of 2016, so the bees will have several different sources of flower nectar.

- We also had a conversation with our neighbors, who keep goats, and we offered them another part of our front yard for extra pasture for their goats. We did a soil test on these two parts of the yard and discerned that we needed to add a lot of lime to raise the PH so the clover parts of seed mixtures could thrive. We spent hours hauling heavy bags of two kinds of lime (dolomitic and calcitic) and other fertilizers, to meet the measures indicated by the soil test.
- We set up a martin house and managed to attract a young couple our first season. They arrived later than we expected, but they managed to fledge a nest of 3 young birds that took flight on 7/30/15.
- I attended the OEFFA conference in 2015 and again in 2016. My main concentration was on soil science, and how to make our soil more fertile and full of nutrients. I also have read a number of books on composting, hay bale gardening, square foot gardening, compost tea brewing, and soil science and have tried to incorporate any new ideas into the garden.
- We added cover crops to the garden, beneficial bug plants, and some organic fertilizers (including fish products and seaweed) to help boost the nutritional content of our soil. We added more comfrey plants because comfrey is a deep-rooted plant that draws nutrients deep from under the soil and makes them available to vegetable plants, which have more shallow root systems.
- In 2016, we will add applications of compost tea, and some fertilizers that have higher mycorrhizal content, to build a stronger food-soil web in the garden soil.
- In 2016, we have purchased exclusively organic, non GMO seeds for our plants.
- We expanded our compost production in 2015 and even more so into spring 2016. We currently have 4 large compost bins (5' high and 5' across, each) plus an additional bin of leaves to use as mulch and filler for garden beds. Despite having 5 acres, 1.5 of which is woods, we cannot gather enough leaves from our property to fulfill our need for leaves. We had to make numerous forays to other properties to get leaves from neighbors and friends who do not spray their yards, to get enough to make this large volume of compost. We also use our own grass clippings for mulch in the vegetable garden. We do a first mowing in the spring and allow that to work back into the soil; we harvest our 2<sup>nd</sup> mowing and dry it in the yard, then store it in clean garbage cans, for use as our own mulch to protect the soil from drying out and to add organic matter back into the soil.
- We have tried numerous techniques for composting, and are still in experimental mode. The majority of leaves available are maple and these seem to compost differently than the oak leaves from our city property. We moved the location of the compost piles in fall 2015, because it seemed that the location we were using was too wet and we also did not cover the leaves, so we opted to try putting the bins in a more open area and cover them with tarps. We have to improve this a lot, because I have spent a lot of time re-tying the tarps and they have collected water which has frozen throughout this highly varied winter. We need to find a better system!

#### Dog Rescue/Foster:

We've been involved in rescuing shelter dogs from Ohio and Kentucky for about 8 years (January 2008). We started as transport drivers only, and graduated to volunteering for local rescues as adopters, fosters, fundraisers, and Board members. I volunteered at Gallia County Animal Shelter in Gallipolis, Ohio for 4 years (this shelter was 110 miles from my house, yet I made 2-5 trips per month to pull dogs and get them transported to rescues). I pulled 600 dogs from this shelter in my car during that 4 year period. I had to stop going simply because when we moved, the trip was longer and a lot harder to get

to from this part of central Ohio. In the meantime, a new local group took over where I and others had started, and I turned my attention elsewhere.

We have dedicated our basement of our house to housing dogs WE have rescued, and to fostering dogs from all over Ohio that are pulled by rescues from other places. We are aligned with **Stop the Suffering** in Ohio (they transport thousands of dogs from southern Ohio shelters every year, and connect these dogs with over 50 different rescues all over the Midwest). These transports are run by volunteers and the drivers are also volunteers. We send dogs to MI, IL, MN, WI, Chicago, upstate NY, and some to the East Coast (NJ, PA, CT, VA, NY city area). We also send dogs into Canada; there are a number of Canadian rescues that routinely offer to pull US dogs into their rescues and find them homes.

We currently work a lot with **Save Me Rescue** out of the Toronto area. In 2014, we fostered perhaps 12 dogs for this rescue and 61 other dogs for a variety of rescues; at the end of 2014 we decided we liked **Save Me** enough to increase that number. In 2015, we housed 68 foster dogs throughout the year. 59 of those were for **Save Me** and the other 9 dogs were from a variety of other rescues, some in Ohio and others were from MidWest locations.