

Permaculture in Maine

by Jordan Ruff

Permaculture, or permanent agriculture, is a sustainable design system that was started in the 70's in Australia by Bill Mollison and David Holmgren. The movement has gained momentum through Australia and New Zealand, England and Ireland, the west coast of the United States, and is now taking root in Maine. Last year Lisa Fernandes started a Portland Permaculture "Meet-up group" and uses her 1/3 acre yard in South Portland as a demonstration site. In addition to providing workshops, such as one on no-dig gardening last weekend, the group meets once a month at a different member's home for a potluck and to brainstorm about ways in which principles of permaculture can be employed in that space.

Lisa first learned of permaculture in Ireland, then took a design course in Olympia, Washington. After attending a peak oil conference in Europe, she was inspired to take some positive steps to prepare, by teaching people about sustainable design and building relationships within the local community. This will help people rely less on energy intensive industrial agriculture for their food. She explains that permaculture is possible anywhere, from rural farms to suburban back yards, or even a porch in the middle of a city. The methods of permaculture are not all contained in one enormous how-to manual, but are passed on or innovated through creatively adapting to the resources of the land, local environment, and local community. "Connecting to the community is key," she says, "because no one lives in a vacuum."

Some permaculture principles are: designing with patterns in nature instead of against nature; planting food bearing plants and perennials rather than annuals; designing everything to minimize ongoing labor and effort as much as possible, and minimizing consumption of resources and energy so that the system is sustainable. Stacking functions is a way of minimizing ongoing labor, so each plant or element of the design should serve at least three functions. Maximizing edge is encouraged, since edges are often highly prolific areas. For example the most active times of the day occur at the edges of day and night: dawn and dusk. The edge of a pond can be maximized by shaping it as a square rather than a circle, and the edge produced by a stone wall can be maximized by building it in curves instead of in a straight line. Understanding the relationships between plants is also an important element of permaculture. For example, apple trees will not bear fruit if planted near black walnut trees, because of a chemical the walnut tree emits. But positioning mulberry trees between them blocks the walnut's effects. Although there is some debate about whether permaculture should include non-native plants, Lisa thinks it is not necessary to stick to native plants as long as they're not invasive. For example, although Ginkgo trees are native to Asia, they have many benefits here. Ginkgo bilboa in tea enhances circulation, and the tree works well in urban areas because they absorb pollutants and provide shade.

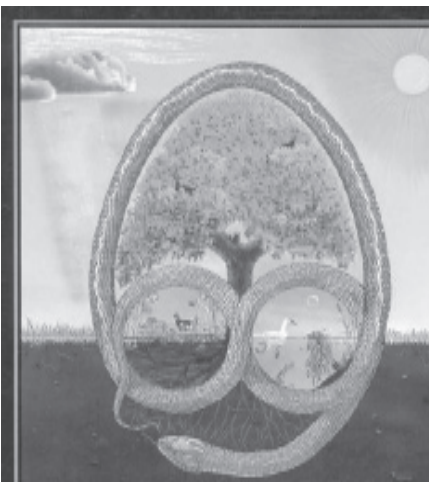
Lisa suggested that I visit the Humastacia Gardens in Whitefield to see a true permaculture system in action. This is the home of Charles and Julia Yalton, who settled in Maine three years ago with almost nothing, after years of traveling all over the world teaching and learning permaculture, and seeing what aspects were derived from knowledge passed on by various indigenous cultures. Prior to their journey they lived on the Crystal Waters Ecovillage in Queensland, Australia and their plot of land became a model of permaculture design. They decided to settle in the states because they determined that this is the place where this teaching could have the greatest impact because here consumerism and waste are out of control. They now use the site to as a model for workshops and for design courses they teach through UNH and the University of Maine.

The gardens are on a 2.08 acre plot of land, of which they only cleared a 200x400 ft. section for the home and gardens, as well as the pines from a patch to the south of the house to maximize winter sun exposure. The system is divided into zones. Zone 0 is the house. Zone 1 is the area closest to it, in which they have all their vegetable gardens, and compost (the parts of the garden that they visit most often). Zone 2 is the next closest area where they have medicinal herbs growing. They may clear another small section which will be zone 3, for fruit and nut trees, but the rest they are leaving as zone 5- untouched woods. The trees to the west act as a wind barrier, redirecting the wind up and over the house and gardens and into the trees to the east. 70% of the wood used to build the house was cut and milled on site. Structurally it is a pole house, with 150-year old cedar trunks used as the posts. These were discarded by Central Maine Power after 50 years of use as poles for high voltage power lines. All of the other materials were obtained locally.

Their energy use is very low, about \$19 a month, which goes to power some compact fluorescents, an energy efficient freezer, sometimes a small bar fridge, a computer and printer, a fan, a pump, and some power tools. Later this month, students from a UNH permaculture design class will be helping with the assembly of a solar array, which will bring their energy usage down even further, closer to the minimum \$7.50 a month required to stay on the grid. They are conscious of their energy budget and use a kilowatt meter which they plug into the wall with any appliance to see how much it draws, and choose what they want to spend that monthly ration on. Rather than a refrigerator, they use a cold closet with a tight seal, cooled geothermally. A 45 ft. pipe (it works better with 60 ft pipe) slopes downward from an opening under a cairn in the front yard, underground below the workshop, to an opening at the bottom of the closet where the air is drawn up by a small muffin fan. The temperature in the closet ranges from 44-54 degrees, and they only need to use a back up mini fridge for dairy during the hottest 6 weeks to 2 months of the summer.

Passive solar and a wood stove (which also functions as a cook stove and water heater) keeps the house heated to 68-70 degrees all winter. They only need to use the backup wood stove when outside temperatures fall to 10 below. At the lowest part of the house which faces south-east, a wall of two paned windows that slope inward (getting the proper angle is key) heats air between the window panes and lets the sun pass through to a heat catching wall of slate. These windows have vents at the bottom and the top to circulate the air through the gap between the two panes. The panes taper towards the top to accelerate air flow. On the opposite wall, the irregularly shaped slate pieces, obtained in Monson, are arranged to reach the extent of the arch of the winter sun. At the bottom of this wall is a bench filled with round rocks that also absorb heat. This area gets too hot to grow plants in the winter and is only used to start seedlings in the spring. The floor is insulated with packing peanuts that a local ceramics artist gets from a local Borders bookstore, though she has so much of it that she needed to build a shed to store them. The Yaltons filled the crawlspace below the floor with as much of these peanuts they could pack in with a rake. With only passive solar heat, the lowest the house temperature gets in winter is 40 degrees.

Graham Bell says about stacking functions in *The Permaculture Way* that " 'looks good'



doesn't count as a use". But in the Yalton's home, from the heat catching slate mountain, to the dark hardwood countertops obtained from scraps at a construction site, to the insulating layer of mud from their pond on the kitchen walls, the multi-functional and local elements were also put together using Feng Shui principles, and are aesthetically pleasing. The centerpiece of the kitchen is a French country cupboard, whose antique fading paint patterns were mimicked on the other cabinets and trim. And work in progress was a stack of cedar discs that they cut from small trunks, which will be used as a unique and beautiful floor covering, with sawdust filling the gaps.

Outside in zone 1, vegetable gardens are planted in raised beds that were previous years' compost piles. There are coop houses over some of the beds, which can be covered in plastic to extend the growing season. Sawdust paths allow you to walk right into the beds and also act as a sponge in the rainy spring months, percolating water out slowly throughout the summer. Along with the pond and sheet mulching, or placing newspaper and cardboard below the beds, enough water is kept in the system, that the garden does not need to be watered at all through the summer, just like in a healthy watershed. Since soil health is a major element of permaculture, weeds are looked at differently than in conventional gardening.

When an area is cleared nature first sends in pioneer plants to cover the ground and build the soil. Nettles, Comfrey and Yarrow are weeds that bring up trace elements and deep minerals such as potassium and calcium with their long tap roots. They also attract slugs, keeping them away from the other plants. The Yaltons use these plants in their beds and then cut them before they go to seed, and lay them in the compost to condition the soil.

The system is balancing itself out after three years into a thriving ecosystem. Other animals can often be seen enjoying the gardens. Moose, river otters, mallards, hummingbirds, bobcat (once with four kittens), a persistent raccoon who loves corn, a wolverine, and a wide variety of butterflies are regular visitors. Occasionally there are pests that attack the plants. But an invasion is often followed by something else coming into the system to take care of it. One year, hornworms attacked the tomato plants. Their neighbors sprayed and lost their whole crop, but the Yalton's just let the worms eat some of the plants, fed some to the frogs in their pond, and left the rest which became food for wasp larvae. The next year they had a lot of wasps, but the tomato plants were ok.

According to Graham Bell's "The Permaculture Way", one of the principles of permaculture is to intervene in the least intrusive way possible. The first option is to do nothing and accept a small loss. The next option is to increase output to compensate for the small loss. The third option is a biological intervention, and the fourth to only be used as a last resort, is a chemical intervention. Bell says "Biological and mechanical interventions are absorbed in the greater system, but chemical interventions are the most dangerous because they are not easily broken down and their full consequences cannot be measured." The effects of using pesticides extend in either direction in spacetime from the application point, because not only does it hang around in the environment into the future after being sprayed, the high demand produced by their standardized use required mass production, which is not always safe. In 1984, MIC (a toxin used in pesticides) leaked from a Union Carbide plant in Bhopal, India, leaving at the very least 8,000 people dead. And now a fifth step could be added to the phases of intervention: genetic engineering, whose effects have also not been fully measured.

The Yaltons can obtain all of their food needs either from their own gardens or from the local community. They are part of a CSA, and they can get spelt, oats, wheat, and goat milk from a farm about 7 miles from their home. A freshwater spring is a mile down the road, which they use for drinking water because their well water has high mineral content.

The role of relationships is one factor that distinguishes permaculture and industrial agriculture. Permaculture allows for each living element to develop fully and function within a complex ecosystem, as it does in nature. In industrial agriculture, the farmer attempts to maintain control by reducing the complexity of the ecosystem of a large area of land down to one crop and one function so that it is predictable, using any means necessary to maintain his control (using chemicals to prevent "weeds", and/or genetically altering the plants to get exactly what is wanted from them). It is difficult to break out of the pattern of deadening repetitive methods that have become standardized. The permaculturist understands that by getting to know and working with the plants' various functions and relationships to different elements in the their particular and unique environment, including the soil, other plants, and other animals, less effort needs to be exerted over time and the system takes care of itself. The gardener becomes one of the many actors in the system, within which his or her own complex relationships to the plants, environment and community can also flourish.

A permaculture design certificate course will be offered at the Humastacia gardens this August, which you can find out about at www.permaculturedesign.org. To join the Permaculture meetup group, go to <http://permaculture.meetup.com>.

Feedback Forum continued from page 1

Americans, Indigenous Americans, homosexuals, the poor, and disabled. It is no coincidence that the United States Government throughout its history has been composed almost exclusively of wealthy Caucasian males. Thus, a dominant power structure was established and controlled by a minority of the population which used and continues to use oppression to keep its power. The most obvious form of oppression in the history of American government has been the use of slavery, war against the native populations, and the censorship and disenfranchisement of women and minority populations.

Well, how does oppression relate to the People's Free Space and the feedback forum?

At the Free Space, we are trying to weed out oppression in our organization and our community. We feel the best way to do this is through education, recognition, and action. We are experimenting with non hierarchical and decentralized decision making structures in our group and have drafted an anti-oppression statement to serve as a general guideline for those that use and organize with People's Free Space. However, Oppression such as patriarchy, racism, classism is sometimes revealed by deep seated tendencies which many times we as individuals are unaware of, but can only be brought to our attention by others in our community. Thus, in an effort to confront the oppressions that are perpetrated within the Peoples Free Space we are calling our second public feedback forum. We invite you to participate in the meeting with grievances or no grievances, observations or no observations, with something to share or nothing to share, all are welcome and encouraged to attend in an effort to improve the People's Free Space.

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