

Workshop Title: Permaculture design: Sowing Our Future by Building a Resilient Home and Garden Farm System

Speaker(s) & their titles: Alex Denicola

Executive Summary:

Alex Denicola offers an introduction to permaculture principles and practice of creating resilience and regeneration in our lives and on our land. He encourages a recognition of the dynamics of systems both ecological and economic. The capitalist, fossil-fuel-driven system is examined, along with the reality of climate change. The work of permaculture is presented as a radical way to be part of the solution rather than the problem. Principles of permaculture are presented along with slides showing examples of these principles embodied on his land.

Introduction

Alex has been farming for 24 years, started at age 27. The whole time he did what he thought was ecological agriculture, but felt something was missing. When he discovered permaculture, a light went on. The holistic context had been missing.

The permaculture flower: Each petal represents a domain. Agriculture is the primary domain, since it's a direct relationship with the planet. That falls under the land and stewardship domain. But alone it's not fully holistic.

The built environment is another domain and extremely important. Currently our habitation system is set up to be energetically expensive. So we need to consider all sides of things. It's important to hold a holistic view in permaculture.

All actions are contextual, we're part of something bigger than the bubble of our personal lives. We're going to talk about looking at the big picture.

The subject of permaculture is design. This is radical because we have a catastrophic global problem. To practice permaculture is to take very personal and radical steps to try to stop being part of the problem, and start being part of the solution.

Resilience and regeneration

No one really knows what sustainability is, but often we think about it as a state you can enter. But really, states are constantly changing, so instead we talk about resilience – it's a condition that's flexible and dynamic. One definition of resilience is that it's the capacity of a system to maintain its functions and values in the face of outside pressure, i.e. “Bounce-back-ability”

If you start viewing things in systems it opens whole new vistas. We're surrounded by complexity. There are lots of complexities in organic farming. To understand and work with this system is to create and adopt systems that make sense.

In permaculture we talk about patterns, and recognizing pattern dynamics. Everything, seen and unseen, expresses itself in patterns. Like in geometry and architecture. In architecture, patterns have meaning. You can work with patterns to solve problems.

If you have a problem, try to solve it for patterns. Like we have a learned pattern to pee in our drinking water, to create a waste product. In permaculture, you upcycle it, and create a different pattern of behaviour.

Permaculture starts by looking at where we find ourselves right now. It's not negative to observe and recognize problems. The most aligned people to our problems right now are the scientists who study climate change. But the really well-funded climate deniers are also part of the context. That we need to recognize.

Adaptation

We need to ensure that we are prepared. Preparedness is part of resilience. In doing permaculture we are trying to build lifeboats, because the ship of our civilization is in trouble. All of us have been born into a systemic dependence on fossil fuels. We consider this normal. But fossil fuels are finite. We're running out of cheap oil, but we have not felt the pinch yet because we still have "conventional" oil – cheap oil – that produces conventional fuel. But it's harder to get so now they are doing other things, like fracking. All kinds of different methods to get more fossil fuels. That ship is going to go ahead.

Being cognizant of how the "ship" of our civilization is entirely powered by fossil fuels makes us consider that we need to find alternatives. The present alternative is solar. If you have a system, consider how you can shift it towards contemporary solar. This includes wood heat.

The current system is using more and more energy to get energy. Using more oil to get more oil. We're using it up. So there's less energy per capita. So there's only one systemic response to that: contraction.

In some organic agriculture they do the same thing as conventional agriculture, with monoculture fields, substitute inputs. It's less bad than conventional, but that's not using a different system. Permaculture is more ambitious.

There are three ethics: Earthcare, People care, and sharing the surplus.

Earth care

You take care of and commit to a piece of land, to regenerate. If we all got off of fossil fuels and started taking care of a piece of land, that would be moving towards resilience and regeneration.

We seek to regenerate and restore:

- water
- soil

- biodiversity
- biomass

Sowing the future:

If you leave a pile of toxic waste, someone will run into that. If we leave regenerated land, that's a different thing. We are sowing the future now. We're not making predictions, we're projecting based on current trajectories. We're in the middle of climate change now, and we're in economic death throws. The rich are getting richer because these conditions favour them.

Principles of Permaculture Design

This is about what kind of thinking will solve our problems. The principles offer not what to think, but lines along which to think. There's one major mistake: the status quo will not continue. It can't economically, ecologically, socially. There will not be a recovery of our current system. If we do resilience and regeneration we have a chance at something other than a bitter legacy. What we do now will make a difference, but giving up is not useful.

Regeneration requires action – we want to work with water. Water is very important. Instead of polluting it, we want to clean it. We want to channel it, release it cleaner. We want to restore the health of the soil. Water and carbon belong in the soil.

Biodiversity: The building was designed to be a pig barn, and they scraped the topsoil in the 70s or 80s. The pasture is subsoil. This is now the perfect place to do permaculture.

Observe and interact:

The barn is where I live, it is now the hub. The main leverage point was earth works and plants. You change the landform with heavy equipment. Use the oil to create something better for the future.

Take a top-down view of your farm; see the whole thing as a system. If you just try to control things from the top – like just changing social policy – it doesn't work. Act from the bottom.

This is both micro and macro scale. A simple example is that he observed that the dog was going nuts, which led him to discover that there was a place behind the cladding where rats were going in. He was able to tighten the building so this wouldn't happen.

Permaculture design is always **site specific**.

Catch and store water: He has three ponds. One of them is up high so that he can use the water with gravity. Putting ponds down low requires you to have pumps and to use energy to use them. Pond 1 is connected to pond 2, and designed spillways it goes into pond 3, and he can water his entire market garden with it.

We're going into an age of salvage, and it's very important to get really good at re-purposing things. Junk piles are really useful.

Catch and store energy: Learn about thermal mass and the second law of thermodynamics. In his greenhouse, the stairs catch and store energy, which allows him to extend his season for his plants. Integrating the built environment with the natural environment.

Solar panels are also a way to catch energy – you can't just do everything you're used to. There is also a rocket stove, which moves heat through the cob, which brings heat into the room. Nature catches and stores energy: animals putting on fat for the winter, plants producing seeds.

He makes his living growing and selling organic veggies, but he doesn't sell everything he makes. Not everything should be about production. Some things are about subsistence. You can fill your own needs. There's more to life than production – do more than just exploit the land.

Obtain a yield:

An example is his ducks. They get rid of slugs, he can eat them, and they fertilize one of the ponds that he uses to water his gardens.

Biochar: He accidentally burned a barn, so he turned the burn pile into biochar. The biochar makes the veggies grow better, with bigger leaves. He used the leftover metal to make a fence.

Upcycling: He tries to use everything many times. He pulls up his old bean plants and gives them to goats. Fermentation is another example of upcycling. Everything gets upcycled. The idea is that more points at which you use one thing, the more you get a yield. You can always increase yield, which means you need less money.

Recognize Feedback: You can recognize what didn't work, and do something to improve your system, like building a windbreak to protect your greenhouse. But pay attention to subtle things. Like recognizing how your animals respond to new foods, listening to customers' responses.

Respect limits: You can spend too much time in your garden or take on too much.

Self-regulation: we don't need to do everything right now, or even this year.

Use plants: We grow our own sea buckthorn as medicine, not for sale. We need to use plants as allies in all areas of our land and farms and lives. Ask yourself – can I use a plant to do this?

He uses a lot of mulch because it is renewable, unlike garden fabric. He has a cob oven and an outdoor kitchen, bringing the built and natural environments together. Earth is a resource with a very low carbon footprint. Natural buildings like strawbale and cob are great, but it's a very big topic.

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Patterns: Think about how to channel water and human energy and movement; think about how water moves across the landscape, creating a system with patterns of access through paths.

The permaculture design on his farm took place in a very small area. You can also do it over large areas, and over time. For example, nut trees take a long time, but then they will produce large amounts of protein and oils over a long time with very little inputs.

He uses an alder fence to try to keep the deer out of the orchard.

In permaculture, none of the ideas are new; they've just brought them together into a teachable system. You don't need an expert; if you study, you can do it. One example is that he has a dog, but he has a rat terrier, so she has a function as well as being a family pet.

Small and slow solutions: Using wood is a good way to be resilient (e.g. rocket stove, cob ovens).

To build resilience think of power and water. Wood moves you towards contemporary solar.

His solution to improving his degraded pasture was to use pasture animals, but it will take a long time. We need to increase our time horizon. That's part of regeneration.