

Remembering Bob Berry in His Own Words by Katie Singer

The arborist Bob Berry, PhD, died peacefully March 25th, surrounded by family. Born July 31, 1938, Bob loved everything in the natural world. After working as a cowboy, he researched plant pathology and microbiology, including how to overcome blight on chile, tomatoes and other plants. He headed the math/science department at the College of Santa Fe, taught biology, chemistry and other sciences there and at the College of Osteopathic Medicine and Surgery, the Institute for Chinese Medicine in Santa Fe and other schools. In the late 1980s, he began working in Santa Fe nurseries, including Payne's. In 1992, he became a much sought-after arborist. Patty, his wife of 56 years, called him a tree whisperer.

My husband, Brooke Pyeatt, a tree pruner, frequently consulted with Bob about tree problems that he didn't understand. Several times each year, Bob stopped at our house for coffee.

In the Spring of 2009, I noticed similarities between Bob's approach to remedying trees and the herbalist Susun Weed's Six Steps of Healing, which I described in relation to reproductive health in my book, The Garden of Fertility. "Leave those plants alone," Bob often said, if someone wanted to cut down weeds; and "Let me research it," when a new situation with a tree presented. Susun Weed's first steps are "Do nothing" and "Collect information." Thinking that we might write something together, Bob and I had several conversations where I transcribed his insights. Unfortunately, other projects swallowed me, and our paper didn't materialize.

The day before Patty phoned to let Brooke and me know that Bob was dying, I sorted a pile of old papers and found my decade-old notes from our conversations. Here are some highlights. In the areas where my notes were spotty, Brooke clarified what he thought Bob meant.

Plant basics

Plant life has three basic requirements: nutrition (nitrogen, phosphorous, potassium and other nutrients from the soil); water; and light and darkness.

There are two parts to a plant: the above ground and the below-ground. The roots send water to the leaves. The leaves absorb sunlight and synthesize it into energy that feeds the root. Anything that affects the balance between roots and leaves affects the plant. If the roots don't get enough water, they can't send enough water to the branches, and the tree may produce less leaves. With less leaves, there's less area for photosynthesis--for absorbing sunlight.

Some plants can't take full sun. Others can't grow in full shade.

The fruit bears the seeds that allow reproduction. Depending on the plant, germination happens at different times and temperatures and because of the availability of water. The amount of light and darkness that an organism receives per day also matters for germination, bud break and synthesis of nutrients.

Lots of plants have males and females. But plants are not movable. To make seeds and reproduce, they need a mobile pollinator to get their materials together. Insects collect the pollen from males and transfer it to females. (Some apple trees fertilize themselves.) Wind and hummingbirds can also transfer pollen. Some cacti can be pollinated by only one kind of bird.

As for the juniper tree, the females have berries. Male pollen causes allergies. If you cut down those male trees, the berries go away, and you won't get new junipers.

Dormancy, drought and dying

All plants need a dormancy period. As temperatures warm, trees will go dormant later in the Fall; and they will emerge from dormancy earlier in the Spring. So they have less time for replenishing the energy they used during the growing season. Over the long-term, these shorter dormancy periods weaken trees.

To survive disaster, some plants stay dormant for years.

During drought, roots will die back. With less roots, there's less leafing. The tree loses area for absorbing sunlight. Then, the roots don't get enough food (sunlight), and they die back more. It's a downward spiral. If nothing changes, the tree will die. It can't maintain a survival balance between above and below-ground growth.

When plants are dying, we might turn to a "professional" to get what we think is a good idea. But corporate intervention of natural processes interrupts the sequence of events that creates stability and sustainability.

Imposing our desires on nature

Until the 1920s, many areas of the Southwest were not widely farmed. As settlers arrived, they plowed up the native grasses and planted the crops they wanted. When there was a severe drought several years later, the crops failed. The soil could not retain moisture, and it had nothing to hold it in place. Winds blew away the soil. The Dust Bowl of the 1930s came from exploiting the soil to a point that it could not support the agriculture we imposed on it.

We need food to survive of course. When the soil lacks nutrients, the plants do, too. So do the people who eat the plants.

To replenish nutrients in soil and prevent erosion, we need to keep fallen leaves on the ground. In a wet winter, wet leaves produce leaf mold, which actually nourishes the soil. In a dry winter, the leaves provide cover for the soil, which decreases loss of moisture. This is how nature works. It keeps leaves, stems and roots in place.

We humans think we need things done differently than nature. We want things done *now*. But interrupting one factor of a natural cycle changes the whole cycle. Unfortunately, we interrupt nature routinely, which is disastrous for the web of life. Just moving plants from their native environments to other (hostile) places is like transporting humans to Mars.

The era of chemical control

The era of chemical control of "pests" started after World War II. On a very large scale, petroleum-based pesticides were introduced to control mosquitoes in SE Asia where the U.S. had troops. We didn't want them to get malaria. After the war, we had a lot of DDT left over. The federal government sold it cheaply to get rid of flies and other insects in outhouses and trees. This was perhaps humanity's first attempt to control the natural population of organisms.

To get rid of the weeds and fungus we think we don't want, gardeners spray grasses, rosebushes, tomatoes and trees with pesticides, herbicides and fungicides. Monsanto's Round Up for example contains a carcinogenic growth hormone that makes a weed grow itself to death.

Using even a small application of any artificial substance on a plant suppresses natural processes within a very complex web. Of course, when millions of gardeners apply a small application of something toxic, the problems compound. Each application weakens the plant's natural resistance to pathogens. The plant will need more and more chemicals. This sets up future trouble. It's Analogous to the overuse of antibiotics, which weakens peoples' immune systems.

At this point, without pesticides and fungicides and herbicides, our mono-crop agriculture (growing corn, soy or anything else on one 500,000 acre parcel) is not sustainable. We've added too many toxins to the system. The soil nutrients are too depleted. Combine this with drought, and we've got real trouble.

Santa Fe, drought and bark beetle

It's normal to have dryer and wetter cycles. In the winter of 1997-98, I noticed a decline in the amount of snow that fell in Santa Fe. We had less rain that spring and summer. Even less snow the next winter. Then came the Dome Fire in Los Alamos in 2000. That Fall, driving from North of Pojoaque to Los Alamos, I noticed dead pinons here and there. That Spring, I saw an increase of dead pinons in the canyon. Because of 2001-2003's bark beetle infestation--caused by lack of water--we probably lost twenty percent of the pinon population.

The fact is we had too many trees and not enough water. Bark beetle is nature's way of dealing with a population that has outgrown its resources.

Homeowners in Santa Fe, Rio Arriba and Los Alamos Counties were concerned about their property values. Once they heard that bark beetle caused pinon tree death, they sprayed their trees. We went through more than a million gallons of Carbaryl Sevin each month between 2001-2004. For our monetary ideals, we intervened in a natural cycle.

I began to notice a lot less bees and a decline in lacewings, ladybugs and other beneficial predators. In areas that were heavily sprayed, we lost horny toads. Horny toads eat ants. Ants bring up pesticides, which poison horny toads. I saw a decline in red racer, bull snake and garden snakes. Well, snakes feed on rodents. Carbaryl Sevin poisons rodents.

There's no other way to say it: we've manipulated ourselves into dependence on toxic chemicals. We don't know the extent of the effects of this input on wildlife or the public health. Long term, the systems we've created are not sustainable.

When trees are dying, our temptation is to find blame and a solution. Instead, we need to recognize nature's long-term cycles and that dying is a normal part of life, including for plants.