

Dead Piñons Beget Opportunity for Creativity

by Nate Downey

On a cold and foggy Saturday morning last November, Bill Mollison, the progenitor of permaculture, began a daylong seminar about our piñons with a description about sin curves, moon cycles and drought patterns. Then, without warning, he bombarded his audience with a campaign of shock and awe.

Many who drove up the Old Santa Fe Trail to Camp Stoney on November 13 were outraged by tirades on a host of topics, from the cancer of the American lawn to parents who purchase ponies as a covert form of birth control for their girls. Others were insulted by invectives aimed at our president, religion, tofu and pet food bought from multinational corporations that run cattle next to villages of starving children.

Finally, having provided the necessary perspective, Mollison began to discuss the piñon situation just before lunch. Surrounded by armies of zombie pines flaunting ochre needles and pallid boughs, he beamed, "I think it's marvelous."

Most people would expect less callousness from a guru who started a worldwide movement focused on sustainability. Others would expect a little sympathy from a preacher of principles that mimic nature. But Australia's official ecologist of the 20th century proudly admits he is not a gentleman. He's seen too much devastation — environmental devastation far more horrific than dead evergreens. Sure, he *might* benefit from a few manners, but one has to wonder if Mollison would be as effective without his candor.

For permaculturists, the piñon situation is not a problem to bemoan — it's a reality to accept, an opportunity from which to learn, and an invitation to produce creative solutions. Before considering any solutions, however, it is best to examine the causes and effects of any situation.

WHY OUR PIÑONS ARE DYING

There are various explanations for the death of our trees. One obvious cause is the drought. However, it is important to understand drought not as an unlucky experience,

but as a normal occurrence. Observation of tree rings shows that drought cycles are surprisingly predictable.

Another cause is the unnatural densities that our piñon forests attained in the last century due to a brief period of intense overgrazing at the end of the 1800s. For ages our ecosystem was kept in balance by periodic grass fires that would destroy most of the young piñons in the extensive existing meadows. When the railroad suddenly delivered endless boxcars of sheep, huge herds quickly devoured our grasslands. Piñons then grew up without the regular scorching that had kept the population down.

In his tome *Permaculture: A Designer's Manual*, Mollison references fellow Australian ecologist Arthur Birch, who claims that species risk the greatest possibility of extinction when their densities are either extremely high or extremely low. Applying this principle, clearly we see that our piñons became too dense for their own good, and as the drought worsened (quite possibly exacerbated by global warming), conditions became perfect for the bark beetle.

EFFECTS

Some effects are quite clear; others are less so. Many property values will go down; others, especially for those properties that have no piñons, might go up. Many people will lose valuable privacy; some will forge friendships with newfound neighbors. Many folks will spend lots of money removing the perceived unsightliness, while locals will benefit from the extra employment. Meanwhile raptor populations will increase, as large dead trees make perfect perches. As a result, rabbit and gopher populations will decline, making gardening easier.

The fire risk and its potentially catastrophic effects dominate much of what Mollison calls our "hysteria about the pines." Fortunately, he says, unlike ponderosa pines, which hold sap for decades after death, piñon pines contain the hazardous fuel for only two years — which is also about the time it takes for their needles to fall to the ground. This means that the fire risk will soon be nonexistent.

The most significant long-term effect is that our already barren landscape will become more desolate, as soil erosion will intensify considerably. Although piñons are not famous for their effectiveness at controlling erosion, their branching structures certainly deflect the impact of rain, wind and even sunlight — all of

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which ravage any vulnerable landscape. More importantly, as the trees' extensive lateral root systems decay, their ability to retain soil shrinks proportionally.

APPROPRIATE RESPONSES

There are three basic questions to respond to from a permacultural perspective:

1. What should we do to prevent further loss? Not much. Permaculture is not big on pesticides, especially those that add poison to nut-bearing trees. Numerous sources report that spraying chemicals doesn't always work. At the very least, spraying is expensive — especially when one considers the subsequent "need" to respray ad infinitum. Another option is to water the important trees (in terms of shade, wind protection and privacy), always keeping in mind that mining an ever-shrinking aquifer is not desirable.

2. What should we do with the dead trees? Not much. One of the great "Mollisonisms" is "Work is pollution." The trees will fall to the ground soon enough. Trees that could threaten people and property, or even those that seem unsightly, can be cut down — especially if the remains are used for either erosion control or firewood.

DEAD PIÑONS . . .

3. What should we do to restore the land?

Plenty:

Harvest precipitation. By contouring the land to increase infiltration from rainfall and snowmelt, significant moisture can be captured in "passive" systems. "Active" systems, which include cisterns, pumps and drip irrigation, although expensive, are extremely effective at providing enough supplemental water to establish plant material. Such systems can be financed through the Permaculture Credit Union, one of the sponsors of the Mollison seminar.

Reuse "waste" water. A new state law allows for the use of gray water in the landscape without a permit, as long as certain "best management practices" are followed. Find details at the New Mexico Environment Department's web site, www.nmenv.state.nm.us. Defined as "waste" water from showers, washing machines and sinks (except kitchen sinks), gray water can be used in a variety of ways, as described in several books by Art Ludwig. These books can be purchased at many local nurseries and bookstores or at www.oasisdesigns.net.

More expensive systems that need permits are also available. These treat sewage, or black water (gray water plus waste from kitchen sinks, dishwashers and toilets), and turn this resource into irrigation-quality water. An extensive list of these systems can be found by using Google and searching for "list of approved systems and products for on-site sewage treatment."

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Mulch. Spreading chipped trees, bark, straw, gravel, compost or other appropriate materials on the ground in planted areas is essential for the success of any restoration project. Protecting the ground from the wind and sun helps it retain moisture, and thus plants need less precipitation and fewer supplemental nutrients in order to survive.

Collect condensation. In places that get even less rain than northern New Mexico, people grow trees by creating moisture via condensation. One technique is to plant trees in wide holes that are 15 inches deep. These holes are then filled with gravel. When the temperature changes between day and night, the air between the gravel condenses and leaves enough moisture behind to establish the plant.

Sow seed. Bringing back the grasses, wildflowers and shrubs that existed prior to the late 1800s is, perhaps, the best place to put your energy. With a diverse seed mix, proper timing, good technique and a little luck, results can be pleasantly surprising. Mix seed with binder (a natural glue available at nurseries) and keep an eye on the five-day forecast. Sow and mulch just before monsoons arrive.

With so little rain, such poor soils, incessant sunshine, unforgiving winds and extreme daily temperature shifts, it's a wonder *anything* grows here. Keep in mind that ecosystems are in a constant state of change and that you are not alone in your often frustrating attempts at land restoration. Finally, remember the most important virtue during times like these: patience. ○