



Alamosa Trees *by Marilyn Loser*

Forest Trees and Wild Fires

2011 July 20

As I write, wild-fire smoke still hangs over the San Luis Valley from New Mexico and Arizona fires. As we're all aware, our severe drought conditions, high temperatures, and high winds make the fires difficult to combat. Forest fires are a natural occurrence, but many recent, destructive fires such as Los Conchas near Los Alamos, New Mexico, were human related and could have been prevented.

When you travel through a forest that recently burned you may see total devastation; other times you may see some charred trees and scorched earth. Why the difference? And why do some forests regenerate more quickly than others?

The fireecology.org website states that Ponderosa Pine and mixed forests in the west naturally burned on a cycle of one every 5 to 25 years. But these were not huge fires like we're seeing now. These smaller, lower intensity fires often burnt quickly through the forest at ground level removing brush, dead and smaller trees and grass. They left the forest fairly open and mature trees intact. Some mature trees, such as Aspen and Ponderosa Pine, are called self-pruning trees because they drop lower branches as they grow skyward. They're little affected by a fast moving ground fire. Likewise, grass can grow back quickly from undamaged roots. In fact, Native Americans often set small fires that helped keep the forests in this state. Open, grassy forests provided food and shelter for wildlife and therefore food for Native Americans.

However, in the 20th century, forest managers instituted a policy of fire suppression, allowing forests to become overcrowded with live trees of many heights. Dead trees and forest litter began to pile up, reducing grass on the forest floor. Now fires could burn the ground litter hotly and could ignite smaller trees. The various levels of trees provided a staircase for fire up to the crowns of mature trees, which were usually out of harm's way in more open forests. Frequently referred to as "crown fires", these are the most devastating since fire leaps from tree top to tree top moving slowly and consuming the vast stores of flammable fuel. Embers blown high on the wind travel to more distant tree tops spreading the fire.

Forest management techniques have changed, but after more than 100 years of fire suppression, we're left with dense forests containing high fuel loads. According to a press release from the U.S. Forest Service, Rocky Mountain Region, "On National Forests across the Rocky Mountain Region, we are working hard to reduce the potential for catastrophic wildfires and to restore healthy forests. Forest Service crews are constructing fuel breaks, conducting prescribed burns, and thinning in those areas where forests and neighborhoods meet in what we call the Wildland Urban Interface." It's not going to be easy.

So what happens to various species of trees in a forest fire? Aspens have thin bark and may burn to the ground in a hot, slow moving fire. However, Aspens grow in large clonal colonies and spread by root

suckers. They are atypical of many forest trees since their roots can grow 8-9 feet deep in loose sandy soil. Each individual stem or tree can live for 40-150 years, while the colony may persist for thousands of years as long as the roots aren't damaged. The oldest known Aspen colony is the Pando colony in Utah, estimated to be at least 80,000 years old. All the trees are genetically identical, connected by a single root system.

Since Aspens often sprout from well-established root systems, they're typically the first trees you see in our forests after a fire.

Older, mature trees with thick bark and great height, such as the Douglas Fir and Ponderosa, may survive if the fire doesn't reach and destroy the crown.

Other trees such as Lodgepole Pine benefit from fires for reproduction. They have serotinous cones, which means the cone is sealed shut by resin. The heat of fire melts the resin, allowing the seeds to drop out.

Blue Spruce don't fare well in slow moving, hot fires because their bark is not as thick as Douglas Fir and their branches often extend all the way to the ground, providing lots of fuel all the way up the trunk. The roots are fairly shallow and can be burnt. Spruce need to grow under a shade canopy so don't thrive until long after a clearing fire.

“God has cared for these trees, saved them from drought, disease, avalanches, and a thousand tempests and floods. But he cannot save them from fools.” John Muir