

Gardening Etcetera: Fort Valley Experimental Forest

What is an experimental forest? A place to grow experimental plants? A place to study how trees and other plants grow? Yes. For over a century now, more than 5,000 acres of the Coconino National Forest around Flagstaff has been designated as the Fort Valley Experimental Forest. These lands provide research opportunities for foresters and range scientists to learn how to sustain natural resources without interference from human activities such as wood cutting, hunting or off-road vehicle usage.

In 1908, some forest lands were set aside for research when the Fort Valley Experiment Station opened, the first U.S. Forest Service (USFS) research station in the country. The research site is located near Flagstaff because lumbermen Tim and Michael Riordan noticed how logged lands were not producing new trees. They suggested to their friend, USFS chief Gifford Pinchot, to use cutover land for "experimentry work" to learn how ponderosa pine regenerates, about which little was understood at the time. Pinchot knew well the beautiful trees of Coconino from an 1891 visit -- his hobbled horses had taken off from the Grand Canyon's South Rim bound for their Flagstaff home without him and he had to catch them after a chase through the forest. Pinchot supported the idea of science on the National Forests and in August 1908, three foresters selected the Fort Valley site. One was USFS Chief of Silvics Raphael Zon who declared, "Here we shall plant the tree of research"; another was young forester Gustaf A. Pearson, who was to become director at Fort Valley; and the third was Willard Drake of the Coconino National Forest. Fort Valley was isolated, the forest was in almost-pristine condition as lands nearer to the railroad had been much more heavily logged, and water and a ranger cabin were already on site.

Pearson, accompanied only by his two mules that first winter, established and studied every single factor that may affect a trees' life: climate, rodents, disease, competition, livestock, wildlife, etc. His fieldwork occurred on the forest around Fort Valley where he and the mules could travel easily on lands set aside in an informal agreement with the Coconino NF. Formal designation as the Fort Valley Experimental Forest occurred in 1931 and included five distinct units: two around Fort Valley, and sites near Wing Mountain, Coulter Ranch near Mormon Lake, and near Old Caves Crater in Doney Park (the latter is now out of Experimental Forest control). These areas were chosen because of soil types, forest conditions, and opportunities for research projects. As transportation evolved and more scientists arrived, additional experimental forests and permanent sample plots were set up in Arizona and New Mexico. The Long Valley Experimental Forest, also on the Coconino NF, is an active site near Blue Ridge.

On these units are permanent sample plots where every tree, plant, downed log, and rock is mapped. Photos are taken at the corners and each tree is numbered and then monitored for its condition. Is it infected with mistletoe? Have squirrels built a nest? Is it bending from snow load? Every five years, the plot is re-measured, re-photographed, and the map is updated with the changes that have occurred: dead trees, lightning strikes, new plants, etc.

Additional experiments include a provenance plot where seeds from ponderosa pines of other forests were planted to see how they would grow in northern Arizona, mistletoe and disease control, rodent impacts, nurseries, effects of fire, and methods of logging. Native grasses have also been studied and some areas set aside as Experimental Ranges.

We are just over halfway through a 200-year record of life on the sample plots; the amount of time Pearson thought necessary to fully understand the forest. We are fortunate to have this incredible, long-term scientific research forest that provides invaluable information, especially with talk of climate change. Current researchers can use photos and data to look at what has occurred and then suggest management options to perpetuate our magnificent ponderosa pine forest.

For more information, visit www.fs.fed.us/rm/FortValley.

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