

## Forester's Log: Forest Modeling

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*The Forester's Log is a monthly column published in newspapers and magazines primarily in the American west. Stuever is a forester in the American Southwest. She can be reached at [sse@nmia.com](mailto:sse@nmia.com).*



I'm clicking on pull-down menus in my sleep. It's certainly not the first time I have dreamed about my work as a forester. A standard marking crew jest is to complain about never getting paid for all the trees marked in our dreams while preparing timber sales. Or the miles of fire line built. Or the inventory data collected. Or the trees planted. Days spent as a forester often spill over into nights, and although many of these jobs seem repetitive, I know when I dream of the task, I am internalizing decision-making processes. I am building intuition. Now I am pulling down menus, making decisions about how many trees to cut or how many times to burn, and under what conditions.

In my dreams the model always runs perfectly. The cartoon trees grow, get cut, burn, baby trees come up, the years click by, I am presented a visual diagram of the forest ten years, fifty years, a hundred years from now. I may not like the results, so I change the strategy: I cut more trees, I cut less, I burn more often, I don't burn, I keep more large trees, I cut fewer small trees. Each time I run the model I see how the forest changes based on the input I provide.

In class, the computer software is less forgiving. I get bogged down. Although many of my classmates use the Forest Vegetation Simulator (USDA Forest Service) in their work, this is my first time using the program. The government freeware has been developed over several decades and is based on hundreds of research papers and thousands of combined years of forest experience. Using the computer, the forester has an opportunity to apply many different management options to the same forest stand, and analyze the results of each decision over time. Lacking any training with program, I am fascinated, but confounded.

The class, Rocky Mountain Regional Silviculture, is held in Fort Collins, Colorado. The two-week course is co-hosted by three western universities and draws participants from seven states. Most of the course attendees are either certified silviculturists or working toward certification status. All of us have jobs with a government agency—most with the Forest Service or Bureau of Indian Affairs, but a few of us work for tribes or states.

Silviculture is the branch of forestry that applies knowledge of how trees grow to manage forests that are healthy and provide various benefits. The intensive coursework includes literature reviews and class discussions on current issues in forest health, homework assignments to determine cutting prescriptions given various goals, and group projects and presentations that utilize many skills, including computer modeling. The bottom line is the concept of "density management."

Tree density. Too many trees create forests that burn too hot, attract too many bugs, and grow ever so slowly. In our jobs, we are involved with removing trees, via thinning, timber-harvesting, or prescribed burning. We attend this course to tweak our practice, to improve our judgment, to insure that we are doing the best job we can with the best science available.

As the days go by, my skills at the keyboard improve. My cartoon forests grow or die depending on how much space the trees have to thrive. I learn how regular treatments result in

more resilient forests that withstand wildfire and insect outbreaks. I work with data that ranges from southern New Mexico to northern Utah. On the last day, my team presents options for managing a ponderosa pine stand in South Dakota. Not only have I become acquainted with new tools, but I have gained a support network of thirty other foresters across the west.

Heading home, I wonder how many more nights I will dream of computer menus and cartoon forests.

