

# Experiment in Frost Valley

## A Model of Purity

### **Rene Germain is on a mission.**

“My whole purpose in life,” he said, “is to get people to accept a working landscape.”

Toward that end, Germain routinely motors the 160 miles between the ESF campus and rural Claryville, N.Y., in the Catskills region to assess the progress of his pet project: a 290-acre model forest that sits on a hillside above the Neversink River. It is a key element in a far-reaching effort to use good forest management practices to provide New York City’s 7.3 million residents with clean water.

The ramifications of the work go beyond protecting the environment and conserving the earth’s resources, and straight to the enormous financial burden the city will face if its drinking water fails to pass the federal Environmental Protection Agency’s purity test.

The Frost Valley Model Forest is rooted in a 1989 ultimatum from the EPA to the city: Build a filtration plant or manage the water supply effectively. The cost of filtration was daunting. Construction of a filtration plant would have cost between \$6 billion and \$8 billion. Running the plant, Germain said, would have cost more than \$300 million annually.

The city opted for management. The EPA analyzes the water every five years, to be sure it meets some 60 criteria. As long as it continues to do so, the city can continue to use the water without filtering it. New York is one of only six cities in the United States — and by far, the largest — that uses unfiltered surface water.


Germain is coordinator of the New York City Watershed Model Forest Program, a position he has held since 1997. In that capacity, he leads the effort to set up four model forests in the New York City watershed in cooperation with the city Department of Environmental Protection, the U.S. Forest Service, the New York State Department of Environmental Conservation, and Cornell Cooperative Extension.

The primary purposes of the demonstration sites are outreach, continuing education and research.

*Continued on next page*

by **Claire B. Dunn**

Inside ESF Fall - Winter 2004 11



Associate Professor Rene Germain, left, doctoral student John Munsell, and master’s student Jeff Dietrich discuss the working landscape during a walk through the Frost Valley Model Forest in Claryville, N.Y.

Specifically, model forests emphasize the compatibility of a working forest and water quality. In addition, the sites are used for logger and forester training. Numerous long-term research projects are ongoing, involving scientists from ESF, the U.S. Geological Survey and other institutions.

“Our mission, because the watershed is 89 percent forested, with a majority under private ownership, is to try to get landowners to manage the land with water quality as a big consideration,” Germain said. “A working forested landscape is much better for water quality than land that is going to be developed. The whole idea of the model forests is people will learn about water quality and forestry and get the cutting edge technology right there on the site.”

The gem of the demonstration sites is the model forest on property owned by the Frost Valley YMCA in Claryville. It straddles a dirt road that runs across a hillside above the west branch of the Neversink.

Germain is adamant that the model forest is not — and should not be — a nature center. It is a working landscape, a dynamically changing forest that, when managed correctly, can be economically productive while functioning as a gigantic, natural water purifier. And if people see the way it works, Germain reasons, they will learn from it.

“I have a real, ‘Build it and they will come’ mentality,” he said. “There is a wide spectrum of audiences who can come to Frost Valley and learn from it. You don’t have to be a specialist to get something out of the model forest.”

A few minutes’ walk along the dirt road bears witness to the number of people who are learning from the forest. ESF master’s student Jeff Dietrich, who spent last summer doing research at the forest, can act as a tour guide.

He points out the metal culverts that drain the road, and the portable bridges that allow vehicles to cross the river. The culverts reduce erosion and the bridges are cheaper and less disturbing to the environment than permanent structures. Dietrich also points out an old logging road, constructed without water diversion devices, that is now a permanently rocky rut that looks like a streambed.

There is a 2<sup>1/2</sup>-acre strip that was clear cut, where researchers are regenerating shade-intolerant tree species such as black cherry and white ash. Less valuable wood that was cut, hemlock and yellow birch, was used on the YMCA site for construction and heating purposes.

Most of the research being done on the forest is part of long-term projects that will provide baseline data on forest management and regeneration for several water-quality monitoring projects. Research in Frost Valley covers a wide range of topics:

- studying the impact of silvicultural operations on nutrient fluxes and sedimentation in headwater streams;
- studying the impact of silvicultural operations on macroinvertebrates in headwater streams;

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- examining the impact of harvesting on ground beetles and slime mold;
- studying the role of coarse woody debris in nutrient cycling;
- experimenting with various tending and regeneration techniques, specifically examining the interrelationships between forest regeneration, competing herbaceous plants and woody shrubs and deer herbivory;
- studying the potential for wood chips to sequester nitrates along forested riparian areas.

Doctoral student John Munsell did his master’s thesis on the question of whether landowners are using the accepted best management practices (BMP) when they make decisions about their forested lands. He determined that 21 percent of the landowners in the watershed have management plans, compared with only 6 percent of landowners statewide.

“It’s still not getting done as much as we’d like it to,” he said. “But people here do use a written management plan more than they do throughout the state as a whole. We attribute that to a strong educational network, of which the model forest program is a key component.”

Munsell has been involved in planning annual Frost Valley Field Days events, which offer outdoor education to landowners.

The model forest program falls under the umbrella of the Watershed Agricultural Council, a non-profit organization funded by the city, the U.S. Forest Service and other sources. In addition to Frost Valley, the council operates three other model forests: Lennox Memorial Forest in Delaware County, Ninham Mountain Model Forest in Putnam County and Mink Hollow Model Forest in Ulster County.

*Dunn is assistant director in the Office of News and Publications.*



The model forest is a working landscape that is part of an effort to use good forest management practices to provide New York City’s residents with clean water.