Goats Take Bite Out of Fire Risk

'Fuel-reduction specialists' demonstrate effectiveness

KATHY VOTH WAS ON DUTY as a public affairs officer for the Bureau of Land Management (BLM) when the tragedy at Colorado's Storm King Mountain occurred in 1994. As the terrible human toll of that July day mounted, Voth began to think about ways to lessen the risks faced by firefighters, a process that continued even as she was helping to plan the memorials for the 14 firefighters who died.

"Part of my job was to help create a memorial trail and to work with the families on the biographies of the firefighters," she said. "It was a painful time, and I started to think that there really had to be a better way for us to manage fire than to put our firefighters in danger."

One of the purposes of the Storm King Mountain Memorial Trail is to help people understand what happened there, and to allow for reflection on how future tragedies can be prevented. Voth carried that challenge with her to Utah, where she relocated with BLM in 1997.

Something clicked one day as she talked with a colleague about goats. Voth had a pet goat at home, and she knew from experience that goats would eat almost anything. Why not, then, teach them to eat the often-unappetizing fire fuels that make life so dangerous for those who fight fire?

Today, Belly Girl, Complainer, Thumb-biter and some 75 other goats constitute a cadre of Utah-based fuel reduction specialists eating their way to happiness. At the same time, the goats are demonstrating their effectiveness in lessening hazardous ladder fuels like oakbrush that can carry a fire.

The Utah goats are part of a study being conducted by Utah State University, Utah National Guard and BLM. The effort is being funded by the Joint Fire Science Program, which is a consortium of federal agencies that share firefighting responsibilities. The goal of the study is to provide communities, agencies and goat producers with comprehensive information about using goats to reduce fire fuels.

Voth started out with the idea that the goats would primarily be employed by federal agencies like BLM, but as she worked through the process it turned out that communities were interested too. After a demonstration project at Utah's Camp Williams, in the summer of 2002 Voth moved 15 members of the herd to Woodland Hills, a Utah community that faces extreme fire dangers.

"The cost of doing the work mechanically is horrendous, and you still have to process all the fuel," said Assistant Fire Chief Jeff Anderson, who campaigned for the goats to be brought to Woodland Hills. "I think the goats do a better job. They trample the duff with their feet and break it down, and they're willing to eat the aftergrowth."

Sean Hammond, a recent Utah State graduate who works with Voth, explained the process. "Vegetation is a living thing, and it needs to be trained. Goats will eat the growth points, and if you consistently graze that down over a three-to-five year period it will stop resprouting because the reserves in the root system will be depleted."

At Camp Williams, goats had been used since 1996, but it took a wildfire in July 2001 to fully demonstrate their effectiveness. Lt. Colonel Bob Dunton, an environmental officer with the Utah National Guard, is responsible for fire management at the military facility. Although from the beginning he saw goats as a biological control that made sense, not everyone shared his view.

"There was some skepticism from Camp Williams staff when the project was first introduced," he said. "Not everyone took it seriously, and they didn't see what role the goats could play in wildfire management."

That changed after a large wildfire started on-post as a result of a training exercise. Dunton, with 10 years' experience in wildland firefighting, five as a smoke-jumper, saw flame lengths drop from 15 feet to two feet as they approached the goat treatment sites. Nearby, in an area where a hand crew had worked, the results were not nearly as dramatic.

Kathy Voth, Hank Williams (in back), and Agnes

Dunton said that there is now broad-based support for the use of goats at Camp Williams, but he added that such an undertaking does require effort.

"It is not an easy project," Dunton said. "You have to move the animals, keep them fenced, care for them and otherwise meet their life needs," which include providing water and, as a dietary supplement, salt.

There also might be issues for land managers who find that an area treated by goats loses aesthetic value. But for Dunton, who is currently working to secure funding to bring goats back to Camp Williams, the benefits outweigh the potential problems.

"Fire suppression costs are high, and if a fire migrates off our boundaries the issue is even bigger than suppression," he said. "If a fire were to move off-post into neighboring areas the possible legal ramifications would be extreme."

According to Voth, goats are most effective in shrub-dominated environments.

"We've experimented with pine trees, and the goats will knock the bark off and eat the lower branches. But that leaves a lot of standing dead timber, which is good fuel. So where the goats work best is reducing the amount of vegetation in the understory, particularly in areas where people are living in the wildland/urban interface."

As a targeted fuel treatment, goats can provide an attractive alternative to prescribed burns, for which the proper temperature, wind and humidity are necessary. And unlike hand crews, goats do not produce slash piles that have to be burned later. There is also a cost factor — based on Voth's "goat calculator," it would cost $31,000 for 200 goats to clear one square mile, compared to $132,000 for a hand crew.

One of the roadblocks that Anderson initially encountered in Woodland Hills was local ordinances that prohibited the use of male goats and the construction of electric fencing, which is necessary to keep the goats in and predators out. Both he and Voth appeared at a city council meeting and ultimately persuaded council members to relax the fence ordinance; it was also agreed that male goats would not be used.

Voth admitted that some amount of education is always in order. "People have traditionally heard all these things about goats, like they are hard to manage, they can get out of any fence, they eat anything. So it is really going to take some ongoing demonstrations to help people become comfortable with how it works.

"It's like driving a car. The first time is kind of scary, but after a while it's no big deal."

Another issue is what to do with the goats during the winter. Unlike California, where fuel-eating goats can work year-round, Rocky Mountain states can only use the goats until the weather turns in early fall. Since a certain amount of training is necessary to teach the goats that something like oakbrush can be food, continuity is beneficial.

"You could sell the goats for meat each year, but then you have to get new animals," Voth said. "You don't want to get rid of them at the end of the season because they've just learned how to be useful, and they're also able to teach the next generation."

Voth, who was recently assigned to a BLM office in Fort Collins, Colorado, to coordinate the goat program full-time, is working to complete a handbook that will guide those interested in using goats as part of a comprehensive fire fuel reduction strategy, addressing critical issues such as where to put the goats and how to manage and care for the animals. (One hint: Do not have a breeding pair of goats out on the range.)

If nothing else, Voth hopes the handbook will help communities, agencies and goat producers know what questions to ask. She is also looking for new demonstration sites. (For those interested, Voth can be contacted at (970) 295-5718; her e-mail address is kvoth@cc.usu.edu.)

As for Anderson, he intends to bring in goats of his own now that Voth's herd has left.

"They never complain, they're friendly, and they're up by six working," he said. "It's a solution that benefits everybody." ∎

Kathy Voth holding Emmy Lou, with Rufus (brown), Hank Williams (white), Agnes (far left),