



NEWS RELEASE

USDA FOREST SERVICE • FOREST PRODUCTS LABORATORY

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Reducing forest fire risk and providing clean water with one simple solution

Madison, Wis.— Ask anyone whether having clean drinking water or reducing our nation's forest fire risk are important issues, and just about everyone will say "yes." O.K., you say, but what's the connection?

A new technology being developed by the USDA Forest Service Forest Products Laboratory (FPL) may make the solution more closely related than you realize.

The fire season

We are experiencing a fire season this summer similar to the devastation we saw during the summer of 2000. Current Forest Service figures put us on pace to spend about \$1.4 billion this year in the battle against forest fires. One of the culprits is an overabundance of small trees (typically three to nine inches in diameter, depending on what species and where you are) in our Western forests due to years of successful fire suppression. These small trees serve as fuel for fires, making them burn hotter and more destructively than in the past. The problem is, these trees need to be thinned, but it is very expensive and there is not currently much of a market for them.

According to Forest Service estimates, over 70 million acres of our National Forests need thinning, and that doesn't include state and private land. Thinning costs from \$150 to \$500 per acre.

If a market could be developed for these small trees, that might offset some of the cost. Researchers at the FPL think they may not only have found a use for these small-diameter trees, but may have also found a way to help Americans with another vexing problem: not having enough clean water.

Providing clean water for Americans

According to United States Environmental Protection Agency estimates, over 90 percent of Americans live within 10 miles of an impaired body of water. Filtering contaminants from water is both challenging and expensive. Global spending on filtration is estimated to grow from a \$17 billion business in 1998 to \$75 billion in 2020. And for problems such as parking lot, farm or acid mine run-off, the costs of filtering water can be prohibitive.

That's where FPL researchers step in.

"We've got a system that not only is effective at reducing pollutants, but it does so cheaply using readily available local species," says Roger Rowell, FPL project leader. "Better yet, we can use problem species that need to be thinned to help solve our fire problem." Rowell says Juniper is a great example.

The Juniper problem in the Southwest

Juniper is a low-value species whose growth has run rampant in the Southwest, making it not only a fire hazard, but also causing it to choke off other native species. However, the chemical makeup of juniper makes it particularly adept for use in water filters. Juniper is being used in Ohio's Wayne National Forest (home to a large number of abandoned mines, see sidebar) to clean heavy metals from acid mine run-off. According to Rowell, the filters have been about 80 percent effective in removing the heavy metals. Another benefit is that filter production could provide a spark for small businesses in the West hurt by the decline of logging on our Nation's forests. But that's not where the story ends.

Another twist?

New York's Catskill Mountains are home to a number of dairy farms. A byproduct of dairy farming is phosphates. Phosphates are found in the detergents used to clean the milk parlors. The wash from the dairy farms can flow downstream into the New York City watershed, which serves as a drinking water source for over 60 million people.

But according to James Han, FPL research chemist, researchers have discovered an interesting twist in the battle against agricultural run-off.

"The chemical make-up of the filters from the Wayne after they've removed heavy metals makes them excellent at removing phosphates from streams leaving the Catskills. So rather than disposing of the filters after they've done their job on the Wayne, we can get even more mileage out of them by using them in New York," says Han.

According to Han, most of the filtering systems on the market right now would be cost prohibitive for farmers. FPL's filters are cheap, easy to produce, and work well. Another plus is that locally available species could be used. But Han likes one particular aspect of juniper. "After two weeks in a filter box, juniper doesn't smell as bad as most other species," he chuckles.

Other possibilities

The water filters are also being used to clean cranberry bogs in Massachusetts and parking lot run-off in Wisconsin. They have been proven effective at removing oils, sediment, and pesticides among other things.

And there are other ideas in the works. Rowell says one interesting development may be to use the slash left over after forest fires to make erosion control mats to protect the fragile soil left after the fire.

"This technology has a ton of potential. What we need are partners to help us get it implemented," he says.

For more information or to see pictures of the filters in action, go to www.fpl.fs.fed.us and click on "featured research." Or call Roger Rowell at 608-231-9416.

Sidebar: Why cleaning up former mine sites is important to everyone

When FPL researcher Roger Rowell was visiting the former mine site in the Wayne National Forest where he and others are experimenting with cleaning acid mine discharge, he discovered something peculiar. "School children were actually coloring rivers and streams orange in their artwork," Rowell noticed. The contamination from former mines in the area not only has affected the local environment but is

also affecting what the next generation considers normal. This is probably not the only place where this is happening. In 1993, the Mineral Policy Center estimated that there were more than 500,000 abandoned hard rock mine sites in the nation. Of these, they estimated that 131,000 sites, or 24%, had some sort of physical or environmental hazard. In 1996, the USDA Forest Service estimated that there were approximately 38,500 abandoned or inactive hard rock mine sites on or affecting National Forest lands. Of these, they estimate that 6,000 were causing environmental or human health problems. In 1999, the Environmental Protection Agency (EPA) estimated that 3,400 public drinking water systems were located in watersheds contained in National Forests and about 60 million people lived in the communities served by that drinking water.

The USDA Forest Service Forest Products Laboratory was established in 1910 in Madison, Wis., with the mission to conserve and extend the country's wood resources. Today, FPL's research scientists work with academic and industrial researchers and other government agencies in exploring ways to promote healthy forests and clean water, and improve papermaking and recycling processes. Information is available at FPL's Web site: www.fpl.fs.fed.us. Through FPL's Advanced Housing Research Center, (www.fpl.fs.fed.us/ahrc/), researchers also work to improve homebuilding technologies and materials.

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