

city. He argues that the water company should first fix leaks, introduce water-saving devices and educate customers on water conservation. A third of London's water supply is lost through leaks.

The reaction to a resource shortage is usually to increase supply rather than reduce demand. Few people are prepared to lower their standard of living, but water use can be cut fairly painlessly. The problem is that reducing demand is less glamorous than adding supply, and corporate interests can

make more money out of selling a new plant than pushing conservation. Desalination has a role to play in future water supplies, but it is clearly not a panacea, despite ambitious claims and proposals to the contrary.

CONTACTS: Freshwater Action Network, (011)44-0-20-7793-4522, www.freshwateraction.net; Pacific Institute, (510)251-1600, www.pacinst.org/reports/desalination/desalination_report.pdf; Water: Use It Wisely, (602)957-7323, www.wateruseitwisely.com.—Paul Brannan

Burning Down the House (and Trees)

Fire Spending Overwhelms Forest Service Budget

The trees are turning red and dying, and the public expects us to do something about it," says Phil Bowden, a specialist with the White River National Forest in Colorado. Bowden now spends almost all of his time studying the bark beetle outbreak—which has left hundreds of thousand of acres of dead forest across the Rockies. "We can't chase the bugs, but we can put in some buffers and try to protect communities," he says.

Bowden points to a 14-acre clear-cut above the town of Vail on the forest boundary. The clearing is designed to create a 200-foot break between the dying lodgepole pine forest above and the homes below by promoting the regeneration of a strip of less-flammable aspens. "The mountainside is so steep that the only way to get the trees out was to use helicopters," he says. "They lifted the trees down to a landing near the road below where they were hauled out by truck."

The 14-acre project cost \$250,000, and is a small part of a five-year plan to put in fuel breaks and aspen buffers across 1,500 acres surrounding Vail. In this case, the Forest Service partnered with the town of Vail which contributed \$200,000 to complete the project.

"They get it," says Bowden. "Five years ago, there is no way you could have done clearcuts above town. Now, they not only accept it, they pay for it."

Funding for critical land management programs has become increasingly scarce for the Forest Service in recent years as the agency has had to divert significant money to fighting larger, more intense fires. Drought and warmer temperatures have lengthened the fire season, and expansion of housing on the fringes of public lands has driven up the costs of fighting fires in the wildland-urban interface. And the agency's own policy of suppressing all fires has led to a tremendous buildup of fuels in many forests. Fire suppression costs now account for 45 percent of the agency's overall budget—up from 13 percent in 1991.

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The Hayman wildfire burns through the Pike National Forest in Colorado in 2002.

Under the Bush administration, the Forest Service's budget has been steadily reduced. So as firefighting costs have risen, the agency has been forced to absorb the increases through a 35 percent reduction in other programs since 2000. The programs that have been hit hardest by cutbacks include research, fire preparedness, wildlife habitat restoration, recreation, invasive species control and state and community assistance.

"We are changing from a multi-mission land management and science agency to a firefighting agency," says Michael Rains, director of the Forest Service's Northern Research Station, who adds that he was forced to cut 11 percent from the station budget in 2008. That resulted in big cuts in research programs in atmospheric science, urban watersheds and forest health.

"Six years ago, fire suppression was \$400 million of the Forest Service budget," he says. "Now it's well over \$1 billion. With a constrained budget, that \$600 million has to come from somewhere—science programs, recreation and habitat improvement. We are literally cannibalizing our budget."

Rick Cable, regional forester for the Rocky Mountain Region, says that he has been forced to deal with the budget

crunch by having fewer people on the ground. "We definitely have less of a field presence now—fewer people working in recreation and wildlife management. We can feel it, and the public can feel it," Cable says.

Maribeth Gustafson, forest supervisor for Colorado's White River National Forest, says that other agencies that manage emergencies are not doing so out of their operating budget. "How can you run programs when you are constantly derailed by managing disasters?" she asks.

While the Forest Service has found willing partners in affluent Colorado ski towns, more rural communities can't afford to help.

Oscar Martinez, a district ranger on the Medicine Bow-Routt National Forest in northern Colorado is also dealing with the bark beetle epidemic. "We have lots of projects ready and National Environmental Policy Act [NEPA] approved, but we haven't had the budget to implement strategic projects," he says.

Martinez explains that "fire borrowing" has become a yearly occurrence.

Each summer, money is pulled from critical programs in forest health, range conservation, wildlife biology, and recreation to pay for suppression costs.

Last April, five former Forest Service chiefs issued a statement of concern to Congress. "The Forest Service has been put into an untenable situation due to the way fire suppression is being handled in the federal budget," they wrote.

A report by the General Accounting Office in late 2006 called for federal land managers to shift more of the firefighting costs to state and local governments, which the feds argue are responsible for controlling the expansion of the wildland-urban interface—one of the identified factors behind the increased costs in fire suppression.

Despite the recognition of the essential role that fire plays in many ecosystems, only an average of two percent of ignitions are managed as wildland fire use. Many fires that are suppressed occur in remote locations where they pose no harm to people and could improve watershed conditions and wildlife habitat and reduce hazardous fuel buildup.

"We need to get our arms around the fire management issue so we don't neglect the rest of the forest," says John McCarthy of The Wilderness Society. McCarthy notes that wildland fire use costs much less than fire suppression, and that's starting to get serious attention in the financially strapped land management agencies. The Forest Service estimates that it costs about \$51 per acre to manage a fire, contrasting with \$582 per acre to suppress one.

Appropriate Management Response (AMR) is a more flexible fire suppression method with one eye on cost-containment and another on natural resource benefit. Fire managers are starting to use AMR to manage fires, fighting aggressively on one flank to protect homes or sensitive habitat while directing, or "herding the fire" on another flank to accomplish land management goals.

Jaelith Hall-Rivera, a wildfire budget analyst with The Wilderness Society, says that the fire community is changing its approach. "Now there is pretty good acceptance of the newer AMR

Funding is scarce as the Forest Service diverts more and more money to fighting larger and more intense fires.

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strategy, but resources are stretched thin, and it comes down to funding and capacity,” Hall-Rivera says. She adds that most fire policy analysts recognize that federal managers now have a more difficult job as drought and climate change lead to longer and more intense fire seasons. “That is all the more reason to get fire on the landscape today—to make forests more resilient for the challenges and conditions they will face in the future,” she says.

CONTACTS: National Association of State Foresters, www.stateforesters.org; USDA Forest Service, (202)205-8333, www.fs.fed.us; Wilderness Society, (202)456-1111, www.wilderness.org.
—Josh McDaniel



Curing Congestion

Variable Toll Pricing Gets Cars off the Road

Across the country, air quality in big cities suffers from an onslaught of daily commuters in cars. Some government officials are tackling traffic congestion head on. New York Mayor Michael Bloomberg introduced a congestion pricing plan last year that would have discouraged automobile use and encouraged commuters to bike, walk or use mass transit. Bloomberg's plan, stillborn amid fierce turf wars, would have charged a fee to drivers entering the busiest parts of Manhattan during its heaviest times of use. It was modeled closely on London's highly successful pricing plan, put in place in 2003.

According to the mayor's congestion scheme, part of PlaNYC, the revenue collected would be used solely to fund

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