Land Letter
THE NATURAL RESOURCES WEEKLY REPORT

2. FIRES: After the blazes are out, restoration efforts continue

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Even before the Tripod complex fire was contained in late October, emergency stabilization and restoration efforts had already begun. With smoke still lingering over the 175,000-acre burn area in the Okanogan-Wenatchee National Forest of north-central Washington, just a few miles from the Canadian border, helicopters hovered above the canyons. At their designated altitude, they dropped a payload -- not of fire retardant but half-ton bales of straw that would disperse on impact to spread material along the steep slopes. The goal was to establish mulch material to minimize erosion when the rains begin in just a few weeks.

In more accessible terrain, members of the federal Burned Area Emergency Rehabilitation (BAER) inter-agency team of scientists, engineers and forest professionals assessed the region, noting areas where downed trees might pose a hazard to rehabilitation efforts and marking them for immediate removal. The team will also survey culverts and other drainages that require clearing and monitor the status of road-clearing efforts. Where appropriate or necessary, the crew may install erosion control devises, put up warning signs, or take emergency measures to prevent the permanent loss of habitat for threatened and endangered species. The BAER team members will be on the scene until heavy rains and snow makes their job too difficult.

This is a scene replayed in hundreds of locations across the country and throughout the late summer and early fall. The 2006 fire season, still smoldering in places, has already entered the record books, with more than 9.5 million acres of forest, shrubland and grasslands burned by nearly 90,000 separate fire incidents reported from Jan. 1 through Nov. 10 (*Land Letter*, Nov. 2).

Post-fire scene at Cavity Lake in the Superior National Forest in Minnesota. Photo courtesy of inciweb.org.

Each fire is unique, a combination of factors including causation, terrain, fuel type and location. And while this season's documented fires ranged in size from a few hundred acres to hundreds of thousands, the initial priorities for post-fire restoration are a common theme. "Rehabilitation involves seeding, soil stability, felling of hazardous trees and trail reopening," explained Tom Zimmerman, director of fire and aviation for the U.S. Forest Service's Southwest Region in Albuquerque, N.M. Often, after the immediate needs are taken care of, "there is some salvage logging to remove timber," he said.

"Once a fire occurs, our main concerns are the potential for erosion and soil stability," concurred Randy Eardley, spokesman for the Bureau of Land Management, assigned to the National Interagency Fire Center in Boise, Idaho. "Sometimes even before the fire is completely contained, we'll be assessing which slopes will erode and we'll try to rehab them to a condition equal to or better than they were."

The BAER teams are charged with many of these immediate tasks, but there are many things they are not authorized to do, such as replanting commercial forests or grasses, replacing structures, pasture fences or burned habitats, repairing roads flooded after a fires, or conducting longer-term monitoring of the effects of the fire.

In some cases, extraordinary efforts are required to save special cultural areas or preserve protected species. For example, in the aftermath of the nearly 200,000-acre Derby fire in the Gallatin National Forest of Montana this year, Forest Service employees teamed with state wildlife agency staff to move Yellowstone River cutthroat trout out of Deer Creek. The concern was that erosion and debris flows into the creek would kill thousands of the fish, which has already been having a hard time surviving. After the threat of erosion has passed, the fish will be returned to their native waters.

Ten cents on the dollar for rehabilitation

While federal agencies spent about $1.6 billion on firefighting efforts this year, which included funds left over from last year's budget as well as emergency appropriations, the money for emergency stabilization and rehabilitation amounts to about one-tenth of that figure.

Of the $424 million spent by Department of Interior agencies this season, said Eardley, about $40 million was for post-fire efforts. That figure will vary from year to year, he added, depending on need and how much might be available from the suppression budget. Over the past five years, he said, Interior expenditures for emergency stabilization and rehabilitation ranged from $21 million to over $43 million.

Only the past three budget cycles have shown breakouts for stabilization and rehab spending, and in 2006 the agency's spreadsheet showed $24.5 million spent for stabilization and $15.8 million for rehabilitation applicable to both this year's fires and those from recent years that are still undergoing restoration work.

Specific figures for the USDA Forest Service were not available, but they generally run about three times what is spent by Interior agencies, according to historical figures from NIFC.

Differing priorities

Robin Wills, a fire ecologist for the National Park Service's Pacific West region in Oakland, suggested that post-fire rehabilitation efforts will vary according to which federal agency has jurisdiction over the lands, and how the fire may have spread across state or private lands. "We do less active restoration in park lands than in an urban-wildland interface area," he said. For example, a fire in Yosemite National Park may require less post-fire effort, unless it affects structures or facilities that are core to the park's visitor experience. "We make decisions based on where the fire occurs," he said.

Other agencies may see differing management goals. Wills said the BLM lands might cover rangelands and leases for cattle production, which would dictate replanting of grazing areas. The Bureau of Indian Affairs, in contrast, has a fiduciary relationship with tribes that might emphasize restoration of income producing activities through reforestation. "At the Park Service, our goals are centered around conservation and recreational opportunities for the public. We're less aggressive about restoring income activities," he said.

The Park Service has also been a bit ahead of other agencies in promoting "wildland fire use" or prescribed fires to enhance resource benefits, rather than concentrating heavily on fire suppression. Wills, who is also president of the Association of Fire Ecologists, said, "We're actively promoting the idea that fire is a natural process. In many instances, we don't need to do a lot of rehabilitation" and instead let natural processes work in the aftermath of a fire.

Just as different management style affect decisions, so does the land type. Strategies for dealing with Northwest conifer forests are, and should be, different than those for Midwest grasslands or Southwest chaparral shrub lands, said Jon Keeley, a research scientist for the U.S. Geological Survey. "Everything we know about conifers cannot be extended to shrub lands," he said.

A feller-buncher at work on post-fire cleanup in the Umatilla National Forest in Oregon. Photo by Ken Hagle, courtesy of inciweb.org.

In Southern California, for instance, Keeley has been studying post-fire patterns following the massive 2003 fire season, which included the state's largest fire at over 230,000 acres. What Keeley found was that past management practices had a direct impact on the severity of the fires -- measured by amount of biomass lost -- but there was a surprising lack of relationship between severity and eventual recovery. "Basically, there was no relationship," he explained. "These systems have natural mechanisms. They adapt just fine and dormant seed banks and roots are activated by the fires."

Much more of a concern is that many fires in the region are started by people, and recurrence in certain areas leads to a loss of native vegetation, replaced by weeds that are more prone to future fires. "Any area near a highway or freeway is an example of this type of conversion." One lesson for fire management is that suppression is a necessity in dry shrub lands. "The last thing I want anyone to say in Southern California is to stop suppression. We very much need suppression," Keeley concluded.

This diversity of response, depending on situation is very much at the core of modern fire management, said Jaelith Hall-Rivera, a wildfire policy analyst for the Wilderness Society. She suggested that rather than a one-size-fits-all approach, managers adopt a "three-zone approach" to fuels management that applies before a fire strikes.

The first zone, nearest to human populations and property, may require heavy treatment such as mechanical thinning or prescribed fires to reduce fuel loads and prevent very intense, destructive fires. Five miles beyond the property-wilderness interface, the focus should be on resiliency of the ecosystem and building a natural resistance to catastrophic fires through a mix of tree types and ages. Finally in the roadless areas of wilderness lands, wildland fire use is appropriate. "Lightning strikes are natural," she said. "agencies would manage, but not suppress those fires."

Legislation would allow more salvage sales

But if there is an apparent agreement among many forestry professionals about the need for diverse responses, it seems federal lawmakers are pursuing the opposite. The major piece of wildfire-related legislation proposed in Congress this session was H.R. 4200, the "Forest Emergency Recovery and Research Act." While the bill's stated intent is to improve the ability of federal agencies to promptly implement recovery treatments and reforestation following catastrophic fires, many parties see the bill as opening the way for expedited timber salvage sales without full environmental impact analysis.

In particular, the measure advocates a standardized approach to post-fire management plans in order to:

- Effectively recover the damaged area
- Minimize impacts on adjacent communities
- "Recover damaged but still merchantable material before it loses its economic value."

Particularly troubling to ecologists is a provision that allows timber harvesting for already dead or downed trees but also for those "which mortality is highly probable within five years."

According to Richard Fairbanks, a former Forest Service manager now with the Wilderness Society, such an arbitrary selection process proves to be more harmful than beneficial. In recent testimony to Congress opposing H.R. 4200, Fairbanks cited instances where supposed dead trees were allowed to remain in the forest. "After 10 years, those dead trees still did not know they were dead. Indeed, the survivor trees produced carpets of conifer regeneration, in some cases over 6,000 seedlings per acre. The proposed legislation would allow such trees to be cut, removing a powerful genetic resource from the ecosystem," Fairbanks testified.

H.R. 4200 illustrates the controversy over emphasizing timber salvage as a restoration strategy, and in fact, several researchers have argued that salvage is actually a hindrance to effective post-fire recovery. Robert Beschta, a retired professor of Forest Engineering at Oregon State University, spent a career studying post-fire strategies, concluding that salvage logging typically delays or prevents natural recovery by damaging soils, hampering regeneration, increasing runoff, and adversely impacting the area because of road construction.

"Salvage is not restoration," concluded Hall-Rivera.

The bill passed the House in May, but has languished in the Senate. At this writing, it is uncertain whether the bill will be taken up during the lame-duck session, although its sponsor remains optimistic. Rep. Greg Walden (R-Ore.), chairman of the House Forests Subcommittee, said he hoped the bill could still move, although time is running out.

"Nothing's done for the year until the final gavel falls," Walden said. "You never know when there will be an opportunity. After the worst fire season and maybe the most expensive, we are going to have a lot of cleanup to do."

Senior reporter Dan Berman contributed to this story.