Fire Management today

Volume 60 • No. 4 • Fall 2000

To Burn or Not To Burn?

United States Department of Agriculture
Forest Service

Editor's note: As we enter the 21st century, fire use in wildland management is growing. This issue of *Fire Management Today* focuses on the question of wildland burning. In a pair of thought-provoking essays, Stephen J. Pyne explores some of the challenges facing wildland managers in using fire for ecosystem health. Jim Paxon, fire information officer on the Cerro Grande Fire in May 2000, discusses his experiences on the fire; an escaped prescribed burn, the Cerro Grande Fire threatened the town of Los Alamos, NM, touching off debate on prescribed fire. Gerald W. Williams explores how the 20th century framed the question of wildland burning, shaping attitudes for decades to come. Articles by former USDA Forest Service Chief William B. Greeley and by L.E. Wilkes exemplify opposing viewpoints in the 20th-century fire use debate. Understanding the origins of attitudes toward fire use today will help wildland managers more wisely use fire in the future.

Fire Management Today is published by the Forest Service of the U.S. Department of Agriculture, Washington, DC. The Secretary of Agriculture has determined that the publication of this periodical is necessary in the transaction of the public business required by law of this Department.

Subscriptions ($13.00 per year domestic, $16.25 per year foreign) may be obtained from New Orders, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954. A subscription order form is available on the back cover.

Fire Management Today is available on the World Wide Web at <http://www.fs.fed.us/fire/planning/firenote.htm>.

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On the Cover:

Prescribed fire under ponderosa pines on the Fort Valley Experimental Forest, Coconino National Forest, AZ. During much of the 20th century, Federal and State agencies tried to exclude fire from our public wildlands. Today, land managers are increasingly using fire to help restore ecosystem health. Photo: Allen Farnsworth, USDA Forest Service, Coconino National Forest, Peaks Ranger District, Flagstaff, AZ, 1996. (The photo won first place for prescribed fire in our 2000 photo contest—see the story on page 38.)

The FIRE 21 symbol (shown below and on the cover) stands for the safe and effective use of wildland fire, now and throughout the 21st century. Its shape represents the fire triangle (oxygen, heat, and fuel). The three outer red triangles represent the basic functions of wildland fire organizations (planning, operations, and aviation management), and the three critical aspects of wildland fire management (prevention, suppression, and prescription). The black interior represents land affected by fire; the emerging green points symbolize the growth, restoration, and sustainability associated with fire-adapted ecosystems. The flame represents fire itself as an ever-present force in nature. For more information on FIRE 21 and the science, research, and innovative thinking behind it, contact Mike Apicello, National Interagency Fire Center, 208-387-5460.

FIRE 21

Firefighter and public safety is our first priority.

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No Fuel Like an Old Fuel

Stephen J. Pyne

There are plenty of reasons to control-burn and many ways to do it. But we are often told that burning is necessary simply to prevent conflagrations and that it is easier, cheaper, and safer than fire suppression. It is, inherently, none of these.

Free-burning fire is as complex as the living world that sustains it. There are biotas that more or less expect fire, biotas that tolerate it, and biotas that suffer from it. More precisely, places accommodate the regimes under which fire appears. Applying and removing fire affects each of them differently.

Understanding Fuels

Fire-prone places tend to amass fuels quickly—that is partly what makes them prone to fire. Regular burning trims the scrub, dampening accidental or natural wildland fires even as it often jolts the biota to renewed vigor. Shutting flame down on fire-prone sites means that the combustibles ratchet upward, pile on pile. The longer the time between fires, the more fuel accrues to stoke the inevitable blowup when it comes.

But a blowup is not everywhere inevitable. Some biotas simply age without becoming more combustible. Many landscapes are cultural creations; removing their fire might nudge their biota into forms that become fire-excluding. More biomass does not always mean a bigger fire when the spark strikes. The longer the interval between fires, the less likely in fact it might be that fire can enter a landscape at all.

More biomass does not always mean a bigger fire when the spark strikes.

It is also critical to distinguish between biomass and fuel. Only a fraction of plant matter is available to burn; and its combustibility depends not only on its quantity but also on its arrangement. Piling ponderosa pine needles on top of one another for decades does not increase fire hazard proportionately; only the upper crust can carry the flaming front. Adding annual rings to an old-growth Douglas-fir does not stoke larger fires; again, only the outer fraction will respond to the flame, and if the tree is living, its internal moisture will render it more a heat sink than a heat source. The flame will seek out its needles, if it can reach them; what matters is whether the surface fuels can carry fire into the crown. The critical fire landscapes are those in which aging plants add year by year to the available fuel load. Old biotas do not automatically mean worse fuel conditions.

Managing Fuels

Still, flame is a dandy way to cull those unwanted combustibles and the fires that cling to them. Until recently, controlled burning was the primary way people checked wildland fire. But it was not the only way: People could cut, move, or plant; they could turn flocks out to graze and browse; they could burn waste in fireplaces or piles. If the problem is a technical one—to remove fuel—then many tools are available. Some tools might be better than flame, shuffling or crunching debris without causing smoke or risking escaped fires. It is not possible to flash-burn a textured woods the way oil wells can flare off unwanted gas. The places that most need fire—sites that in the past were routinely flushed by surface flames—are generally those where fuels cannot now accept a beneficial spark without elaborate preparations. The old fuels that most need burning are precisely those that are toughest to burn.

There are also better and worse ways to burn through the excess fuel. Preindustrial societies practice a kind of fire foraging (burning as fuel presents itself) or fire cultivating (growing fuels within agricultural cycles). The American model, however, tries to mold controlled burning in the image of fire suppression. The legal and regulatory environments in which open flame must today exist push agencies in this direction, but so does their own history. Controlled fire is reemerging through institutions designed to fight fire; fire suppression still pays for the infrastructure upon which all of fire management depends. The promise that the agencies can halt escaped fires underpins the social contract under which modern societies allow deliberate burning.

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But to conduct controlled fire on a fire suppression model is, in the end, to share its costs, risks, dangers, and difficulties. Prescribed fire demands, instead, a variety of methods, many unique to itself. Suppression is much the same everywhere; prescribed fire is—or should be—everywhere different. Not least, controlled burning needs institutional room to maneuver as much as it needs environmental space. It needs the legal and bureaucratic equivalent of landscape-scale treatments.

Burning for Biotic Health

Besides, this still begs the question of why one should burn at all. For burning to be compulsory—worth almost any risk—the critical consideration is not fuel reduction but the larger biotic cycling, the shaking and baking, that fire sets in motion. For this, no surrogate technology exists because free-burning fire is not a "tool" but an ecological process. Other ecological events must accommodate it; other tools must serve it; other cultural values must bow to it.

Not every place meets this criterion. Even places groaning under ponderous fuels might not demand fire to burn away the surplus. For sites that do insist on fire, the burning must be regular enough and patchy enough that fuels do not evolve to the point where an introduced flame will either explode amid kindling or extinguish in wet shade.

Perhaps we have it backward. To argue that we need fire solely to reduce fuel shrivels fire to the status of a flaming ax, and it simplifies fuels to the status of carbon bullion, inert as sawn lumber. Burning becomes a choice, not an ecological necessity. The fuel crisis invites us to pick up, as it were, the other end of the firestick. It suggests that, instead of regarding controlled fire primarily as a means to manage fuels, perhaps we should think of fuels as a means to manage the burning a biota needs, to imagine fire as a threatened species and devise a suitable habitat for it. If that ecological imperative isn't there, then probably prescribed fire shouldn't be, either. ■

Greenup after a surface fire passed through a red-cockaded woodpecker colony in longleaf pine on North Carolina's Croatan National Forest. Regular burning in longleaf pine, a fire-adapted forest type, trims the hardwood scrub, dampens the severity of future fires, and jolts the biota to renewed vigor. Photo: Bill Lea, USDA Forest Service, 1994.

A Story To Tell

Stephen J. Pyne

Anyone even casually acquainted with America's wildland fire scene knows the chasm between fire control and fire use. Fire control holds the money; fire suppression created and maintains the institutional infrastructure; and firefighting has historically dominated the culture of wildland fire management. Until recent decades, fire managers never stood accused of misbehavior for suppressing smokes, as they might be held liable for a kindled flame that escaped—or, more tellingly, for failing to burn a site that craved it. The assumption was that one fought a fire unless told not to, but that one set a fire only after considering every conceivable contingency and every constituency. Whatever public policy urged and personal philosophy prompted, the reality was a powerful bias in favor of fire control.

> The difference between fire suppression and fire use is that firefighting can tell a marvelous story, whereas prescribed burning cannot.

Sawtooth Hotshots conducting a night burnout on the Rabbit Creek Fire, part of the 1994 Idaho City Complex. Since 1910, a powerful narrative of firefighter heroism has helped to popularize wildland fire suppression. Photo: Karen Wattenmaker, USDA Forest Service, Boise National Forest, Boise, ID, 1994.

False Rivalry

It is natural, then, that proponents of controlled fire should try to correct that imbalance by matching suppression, item for item; by demanding flexible funding, and lots of it, similar to the emergency fire accounts; by fielding burn crews analogous to hotshots; by creating a parallel program of certification; by seeking to change liability laws to create legal space for burning and to tweak environmental edicts to accommodate smoke; by hosting National Prescribed Fire Awards akin to the Smokey Bear Awards; and by conducting firesetting on the model of firefighting, complete with similar language, tools, and elan.

Such measures might succeed. The old landscapes, however, did not result from a regimen of burning modeled on suppression, so it is doubtful that this particular process will recover exactly what fire exclusion has lost. But it doesn't have to: Almost any fire is better than none at all. The deeper issue is what it will take to slash through all the institutional scrub and burn away public skepticism.

The fact is, suppression is a false rival. Controlled fire does not face fire control like two bull elks bugling a challenge and locking horns, one or the other to triumph. Rather, it sinks from the bites of a million mosquitoes, reddened into frustration, plagued into lethargy. Suppression is not, in truth, the problem. Controlled fire must make its own case, not rise out of the ruins of fire control.

The Role of Epic

For this, it needs a story. Criticism leads to skepticism; story, to action. The most elemental difference between fire suppression and fire use is that firefighting can tell a marvelous story—an environmental epic—and prescribed

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The Big Blowup of 1910 became the founding saga for wildland firefighting's heroic age.

burning cannot. It is easy to forget that fire control did not take the country by storm. From the beginning, it fought a bitter policy battle with light burning that lasted for decades, and it laid an even more stubborn siege to public opinion, whose citadel did not crumble until after World War II. Until then, the American public was largely indifferent or hostile to wildland fire control. Fire suppression initially faced every bit as many challenges as controlled burning does today. Yet it overcame them all.

A jaunty Joe Halm after the Big Blowup in 1910. Halm was a young ranger for the USDA Forest Service, hired in 1909 out of Washington State College, where he had been a football star and among the first forestry graduates. Halm managed to save his camp and crew, then announced they would dig out their gear, order reinforcements, and hit the fires again. That was the attitude of the Service overall, and the story that would ultimately prevail. Photo: Courtesy of Stephen J. Pyne, Forest Service Photograph Collection (Forest Service, 1910; 179326).

The process took decades, luck, and bureaucratic grit. Why did fire control's proponents persist? Why did the public finally believe them and not their rivals? The simplest explanation is that they had a powerful story to tell and their critics did not. As nearly as one can date such matters, that narrative emerged from the ashes of the 1910 conflagrations. Majestic, huge, lethal, the Big Blowup became the founding saga—a Kalevala, a Song of Roland—for wildland firefighting's heroic age. The narrative of 1910 explained what firefighting meant, and it became institutionalized to the virtual exclusion of any other narrative. To it, America owes its wildland fire establishment. Light burners had no such saga to sing. Neither do prescribed fire advocates today.

A Fire Use Saga?

Until a prescribed fire saga appears, it is doubtful that controlled burning will succeed to the extent that its advocates desire and America's wildlands deserve. It isn't enough for controlled fire to continue to swat mosquitoes, even by the millions. It needs the capacity to ignore them, to bull ahead through the muskeg of politics and public opinion, confident that it will thrive in the end. Nor is it enough to downgrade suppression. Fire control's loss is not necessarily controlled fire's gain. The problem is not suppression (which is necessary) or the literary set-piece of the firefight, but rather the absence of a complementary story for controlled burning. Prescribed fire does not need more policy. It needs a poet. ■

The Big Blowup

They remain the fires of record. They became huge because they timed perfectly the shift from a rural, frontier society to one industrializing, settling into cities, and committed to public lands. Wildfires broke loose in a vast arc from California to Washington to Minnesota. On August 20–21, 1910, more than a million acres (400,000 ha) burned in one gulp when winds over the northern Rockies stirred a maelstrom of flame, the fabled Big Blowup.

Virtually every story of fire protection on the public lands can trace its modern origins to 1910. Some 9,000 firefighters dug line; 78 of them died, leading to the first fire memorial and burial ground. The emergency fire fund claimed a staggering $1 million. An Army platoon hauled an injured bear cub out of the burns. Forest rangers were shipped from Utah and Arizona to help direct crews in Montana. A 26-year-old crew boss saved his men by setting an escape fire on the slopes of the Bitterroot Mountains and ordering the crew to lie in the ash. Even as the fires roared, a public debate raged over the proposition that "light burning," not fire control, was the proper method of forest protection.

The fires were the first public crisis of Chief Forester Henry Graves, who had earlier that year replaced the discharged Gifford Pinchot. The head of the Northern Region, William Greeley, succeeded Graves as Chief during the 1920's; and Greeley's assistant, Ferdinand Silcox, became Chief throughout the New Deal, during which the Civilian Conservation Corps built the infrastructure the 1910 crews had sorely lacked and who, after the 1934 wildfire outbreak in the Rockies, promulgated the 10 A.M. Policy of suppressing all fires by 10 a.m. on the morning after they were first reported. Not until this entire generation passed away did the Forest Service consider fire as fit for anything save suppression.

Rightly or not, the drama eventually found its moral center in the story of Edward Pulaski, a ranger who held his panicked crew at gun-point in a mine adit while the firestorm raged. It was Pulaski who stayed on the district to fight again, who tended the graves of the dead firefighters, and who promoted the tool that today bears his name. Every time a smokechaser, hotshot, or emergency firefighter hefts a pulaski tool, he or she is retelling the saga of 1910.

Eventually, the Big Blowup burned over the whole of the 20th century.

The eye of the 1910 firestorm, Pulaski's tunnel, now listed in the National Register of Historic Places. Photo: Courtesy of National Agricultural Library, Special Collections, Forest Service Photograph Collection, Beltsville, MD (J. Halm, 1910; 179329).

"Remember Los Alamos": The Cerro Grande Fire

Jim Paxon

In May 2000, a prescribed fire on the Bandelier National Monument near Los Alamos, NM, escaped to become one of the worst wildfires in the region's history. The fire burned tens of thousands of acres and destroyed hundreds of homes in and around the town of Los Alamos. The fire drew national attention, partly because it endangered the Los Alamos National Laboratory, where the atomic bomb was created in 1944 and where nuclear research continues today. A fire investigation team concluded that Federal personnel had failed to properly plan and implement the prescribed burn (see sidebar).

The Fire's Origins

The Bandelier National Monument, administered by the USDI National Park Service (NPS) from monument headquarters in Los Alamos, has 32,737 acres (13,248 ha) of remote wildlands mostly surrounded by the Santa Fe National Forest. The topography is broken by mountains and mesas bisected by steep, rugged canyons. Woodlands of pinyon–juniper in the canyons give way to ponderosa pine and mixed conifer forests at higher elevations.

On May 4, at about 7 p.m., NPS personnel from the monument ignited the Upper Frijoles Prescribed Fire about 10 miles southwest of Los Alamos (fig. 1). The objective of the prescribed burn was to reduce fuels and thereby minimize the risk of catastrophic wildfire to the community of Los Alamos and the Los Alamos National Laboratory.

The Cerro Grande Fire resulted from an escaped prescribed burn designed to minimize the risk of catastrophic wildfire to the community of Los Alamos.

Prescribed Fire Investigation*

On May 11, just 6 days after a prescribed fire on the Bandelier National Monument escaped to become the Cerro Grande Fire, Secretary of the Interior Bruce Babbitt formed an interagency fire investigation team to examine the surrounding circumstances.

The team concluded that Federal personnel had failed to:

- Utilize the correct National Park Service complexity analysis process;
- Conduct a substantive review of the prescribed fire plan before it was approved;
- Evaluate fuel conditions, potential fire behavior, and public safety in the area adjacent to the prescribed fire boundary in the event the fire escaped;
- Complete and document, prior to ignition, an onsite review of critical conditions identified in the prescribed fire plan;
- Provide adequate contingency resources to successfully suppress an escaped fire;
- Provide wind predictions in the 3- to 5-day forecast for the period from May 7 to May 9; and
- Follow safety policies for firefighters and the public.

The investigation team reaffirmed the Federal Wildland Fire Management Policy adopted in 1995, which endorses fire use "to protect, maintain, and enhance resources." The team warned, however, that the policy's success depends on strict adherence to full policy implementation throughout every agency and at every level.

*Based on the Bandelier National Monument Prescribed Fire Investigation Report delivered to Secretary of the Interior Bruce Babbitt on May 18, 2000.

Jim Paxon is the district ranger for the Black Range Ranger District, Gila National Forest, Truth or Consequences, NM. He served as the fire information officer for the incident management team on the Cerro Grande Fire near Los Alamos, NM.

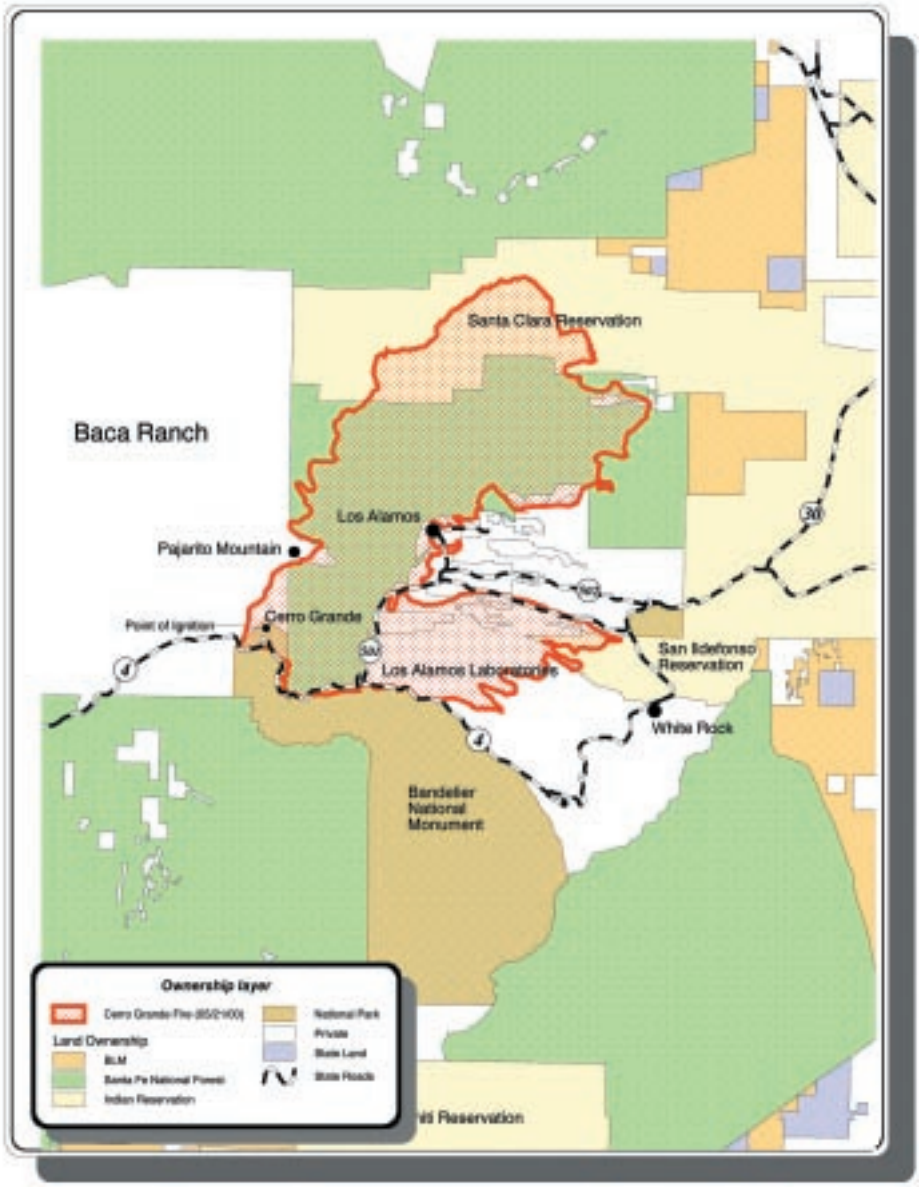

Figure 1—*The area burned by the Cerro Grande Fire near Los Alamos, NM. The fire began on May 4, 2000, as a prescribed burn by National Park Service personnel in the northwest corner of Bandelier National Monument, near Cerro Grande peak. After a slopover on May 5, the burn was declared a wildfire. Pushed by strong winds, the fire burned eastward and northeastward for weeks, reaching a ski area on Pajarito Mountain, the city of Los Alamos, and the Los Alamos National Laboratory and threatening the town of White Rock and the American Indian Pueblos of Santa Clara and San Ildefonso.*

On May 5, a slopover on the northeast side of the burn required aerial retardant to contain it. The aerial action crossed the threshold in the burn plan, triggering a 1 p.m. announcement by the NPS that the Upper Frijoles burn was now a wildfire. Handcrews, helicopters, airtankers, and engines from the Santa Fe Interagency Fire Management Zone converged on the site and worked to contain the 800-acre (340-ha) fire.

On May 7, strong winds pushed the fire across firelines. A crown fire ran eastward onto the Santa Fe National Forest, spreading towards Los Alamos (fig. 1). Almost immediately, Superintendent Roy Weaver of Bandelier National Monument and Supervisor Leonard Atencio of the Santa Fe National Forest jointly called for a type 1 incident management team. The Southwest Area Team, headed by Larry Humphrey, a fuels specialist for the USDI Bureau of Land Management in Safford, AZ, arrived at midnight and took command of the fire at 6:00 a.m. on May 8. As the fire information officer for the team, I was about to experience one of the most challenging assignments of my career.

Severe Fire Conditions

The previous winter had been the driest on record in much of Arizona and New Mexico. The southwestern forests had received no more than 20 percent of average winter moisture. Spring temperatures were higher than normal and winds were strong and continuous, further drying fuels. Haines Indexes of 5 and 6 and Energy Release Components (E.R.C.'s) in the high 80's indicated severe drought conditions in early May, the time of ignition.

In most of the area's forests, thousand-hour fuels—logs greater than 3 inches (8 cm) in diameter—never reached more than 10 percent in residual moisture. By comparison, a kiln-dried 2-inch by 4-inch (5-cm by 10-cm) board from the lumberyard has 12 to 15 percent moisture. Only at the highest elevations, where some snow had accumulated, did thousand-hour fuels approach their normal moisture of 20 percent.

Although major fires had burned near Los Alamos in 1977 (the La Mesa Fire), 1996 (the Dome Fire), and 1998 (the Oso Fire), fire had not visited the area of the prescribed burn for almost 30 years. West of Los Alamos, at the point of ignition, decades of fire exclusion

in ponderosa pine and mixed conifer stands had left thick fuels of dead and down material, including many standing dead trees with heavy ladder fuels.

At 10,000 feet (3,000 m), Cerro Grande Peak (fig. 1) is the area's dominant landmark. Deep canyons with extensive evidence of historic and prehistoric settlement, steep slopes with dense pine forests, and picturesque rock cliffs abound in the area. The very features that make this country so stunningly beautiful also complicate control strategies for firefighters.

Interagency wildland firefighting procedures call for a wildland fire situation analysis (WFSA) to evaluate fire management alternatives and select the best approach. The WFSA on the Cerro Grande Fire was unusually complex, because it potentially involved nine jurisdictions and several communities. Signatories to the WFSA included the Bandelier National Monument, the Santa Fe National Forest, the State of New Mexico, the city and county of Los Alamos, the Los Alamos National Laboratory, the U.S. Department of Energy (DOE), the American Indian Pueblos of San Ildefonso and Santa Clara, and the Baca Land and Cattle Company. Myriad issues included:

Decades of fire exclusion had left thick fuels of dead and down material in the area of the Cerro Grande Fire.

- The risk to the communities of White Rock, Abiquiu, Española, and Los Alamos;
- The effects of fire on the Los Alamos National Laboratory;
- The potential for fire to get into nuclear storage areas and low-level nuclear dumps;
- Security concerns related to classified research sites;
- The threat to ancient lands and national treasures of the two American Indian Pueblos;
- The danger to habitat for threatened and endangered species; and
- The risk to cultural heritage sites.

Our first and highest priorities were (1) firefighter and public safety, and (2) protection of private property.

Evacuating Los Alamos

On the afternoon of May 7, the Cerro Grande Fire made a wind-driven run that was a mile (1.6 km) wide and more than 6 miles (9.7 km) long. Crews were able to stop the run on the Pajarito Ski Area road, west of Los Alamos Canyon. Expanses of unburned fuel remained both to the north and east of Cerro Grande Peak, with no break or opening for firefighter advantage and with Los Alamos directly in the path of any renewed run. To the south, along both sides of State Highway 501 (fig. 1), modified fuelbreaks had been cut in a cooperative venture between the Los Alamos National Laboratory and the Santa Fe National Forest following the 1996 Dome Fire. Firefighters were able to burn out the fuelbreaks and hold the fire, securing the cleared areas. Highway 501 provided much-needed access for firefighters and equipment to the west end of the fire and up the road to the Pajarito Ski Area.

On the morning of May 8, Humphrey's Southwest Area Team held its first planning and strategy meeting with the Los Alamos Fire Department, the Los Alamos

Cerro Grande Fire burning in Santa Clara Canyon near Los Alamos, NM. Steep, densely forested terrain complicated control strategies for wildland firefighters. Photo: W.R. Fortini, Jr., USDA Forest Service, Cibola National Forest, Mountainair Ranger District, Mountainair, NM, 2000.

National Laboratory, and Robert Repass, the Los Alamos County Emergency Operations Coordinator (EOC). We agreed that if the fire advanced into the steep and heavily timbered Los Alamos Canyon, then we would immediately begin evacuating the entire town of Los Alamos through an evacuation order issued to law enforcement personnel and all media outlets.

For 3 days, we notified the remaining Los Alamos residents of the fire's status through the Los Alamos County EOC, local television and radio stations, and the three major television networks in Albuquerque, NM. All local stations carried continuous fire coverage. Residents were consistently told to prepare for evacuation by gathering their most precious belongings. On the afternoon of May 8, as a precautionary measure, we asked residents to evacuate the western part of Los Alamos. Many took heed; about 3,000 residents voluntarily left the area. Beginning on May 8, the DOE's Los Alamos Area Office and the Los Alamos National Laboratory released their employees and contractors until the emergency was over. Many local businesses voluntarily closed.

On May 10, despite a Herculean effort by firefighting forces, winds topping 50 miles per hour (80 km/h) drove the fire across firelines. Spotting occurred more than a mile (1.6 km) ahead of the flames. At 1:30 p.m., when a smoke column appeared from the bottom of Los Alamos Canyon, the call to evacuate came from the Los Alamos County EOC. Within 4 hours, the entire remaining population of Los Alamos, about 8,000 people, left town. Only one minor vehicle accident occurred, and there were no injuries. Emergency personnel and some media crews remained.

The situation on the Cerro Grande Fire was unusually complex, because it potentially involved nine jurisdictions and several communities.

Overwhelmed by flames, wildland firefighters moved to safety zones and watched as the blowup passed. Crews near the Pajarito Ski Area worked to save the ski lodge, outbuildings, ski lifts, and equipment. In Los Alamos, 31 fire departments using 100 fire engines and support vehicles battled the blaze head on. Along State Highway 501, the fire jumped the fireline and reached the grounds of the Los Alamos National Laboratory. In less than 6 hours, the fire grew from 3,700 acres (1,500 ha) to more than 18,000 acres (7,300 ha). In the early morning hours of May 11, 7,000 residents of White Rock were evacuated due to fire threat.

Containment

On large and complex wildfires, the interagency Incident Command System calls for "branching"—bringing in additional teams to manage specific portions of the fire. Each team works under the oversight of an area command team. After the May 10 blowup on the Cerro Grande Fire, Humphrey's Southwest Area Team and the agency administrators from the NPS and Forest Service jointly decided to branch the fire for better logistics and control. An area command team headed by Bob Meuchel, a fuels specialist for the Forest Service, Northern Region, Missoula, MT, was brought in to oversee the two branches of the fire; another type 1 incident management team led by Van Bateman, the fire management officer for the Forest Service, Coconino National Forest, Blue Ridge Ranger District, Flagstaff, AZ, arrived to manage the north half of the fire.

Because this fire burned for so long and because teams are limited to 14 days of active duty, other type 1 and 2 teams rotated in. Humphrey's team left Los Alamos on May 20, replaced by a type 1 team from California led by Steve Gage, a fire department supervisor for Kern County, CA. All told, three type 1 teams, three area command teams, and four type 2 teams would manage all or part of the Cerro Grande Fire throughout the suppression and rehabilitation process.

On May 12, President Clinton declared Los Alamos and the area of the Cerro Grande Fire a national disaster area. The Federal Emergency Management Agency (FEMA) arrived to begin recovery in coordination with the State of New Mexico and local communities.

At 6:00 p.m. on June 6, the Cerro Grande Fire was finally declared contained. As of June 20, about 1,000 people, including hundreds of local volunteers, were preparing the burned area for monsoon rains to minimize the potential for devastating floods following the wildfire (see the sidebar on page 14).

Our first and highest priorities were firefighter and public safety, and protection of private property.

Ultimately, the fire consumed 47,650 acres (19,284 ha) and destroyed 235 homes in Los Alamos, including multifamily dwellings. Some 600 families were displaced. Estimated losses reached more than $1 billion; some people lost everything they owned. At various times, more than 2,500 firefighters and support personnel were involved in battling the blaze.

The fire burned nearly 8,000 acres (3,200 ha) on the grounds of the Los Alamos National Laboratory, a major public safety concern due to the nuclear materials located on laboratory grounds. Multiagency air monitoring, begun in the first week of the fire, found no evidence that the fire caused any releases of radiation or chemicals from laboratory facilities.

A Challenging Experience

In my 31 years of experience in wildland fire management, including 16 years as a fire information officer, I have never been on an incident more complex or challenging than the Cerro Grande Fire. As the official spokesperson for the Southwest Area Team, I was in the hot seat.

We had daily contacts with the White House, several Senators and Congressmen, and many State and local officials. We had personal appearances on the fire by Secretary of the Interior Bruce Babbitt, Secretary of Energy Bill Richardson, Forest Service Chief Mike Dombeck, National Park Service Director Bob Stanton, and FEMA Director James Witt, as well as Senator Pete Domenici of New Mexico, Senator Ted Stevens of Alaska, and Representatives Tom Udall and Heather Wilson of New Mexico. New Mexico Governor Gary Johnson was often on the fire, even donning Nomex clothing to take action on a small blaze near a house in Los Alamos.

The fire was covered live and continuously on local networks for more than a week and was a primary topic of national newscasts and talk shows. On May 7, to help cope with the public demand for information, we activated a multiagency Joint Information Center in Los Alamos. The center was evacuated to White Rock on May 10, to Santa Fe on May 11, and finally to Española on May 13. On May 14, media interested peaked, with 18 large satellite trucks parked at the Los Alamos Inn and many international reporters present. At the height of activity, more than 40 fire information officers from all the agencies

Airtanker dropping retardant along a ridgetop to slow the approaching Cerro Grande Fire. Handcrews, engines, and aircraft worked day and night to protect homes in and around Los Alamos. On June 6, after more than 4 weeks, the fire was finally declared contained. Photo: W.R. Fortini, Jr., USDA Forest Service, Cibola National Forest, Mountainair Ranger District, Mountainair, NM, 2000.

involved were handling 2,000 to 5,000 phone calls per day to the Joint Information Center. Fire and disaster updates were issued up to four times daily.

A Model of Cooperation

The Cerro Grande Fire can serve as a model for advanced fire course simulations and for case studies by government agencies and universities on cooperation and coordination among disparate entities under complex, unique conditions. The smooth evacuation of Los Alamos was a credit to Los Alamos County and to the Los Alamos National Laboratory for their thorough emergency preparations. Credit for the heroic defense of Los Alamos goes to the Los Alamos Fire Department and the many cooperating departments; to the Los Alamos City and County Police; and to Humphrey's Southwest Area Team, along with the hundreds of firefighters who worked tirelessly under grueling conditions for seemingly endless days on end.

Our commitment to safety paid off: Throughout the incident, no firefighter or evacuee received burns, and there were only three minor accidents requiring no more than first aid treatment. The evacuations of both Los Alamos on May 10 and White Rock on May 11 were so orderly and calm that they can serve as a model. Homes were so numerous in the area's wildland–urban interface that many more could have been lost, if not for the heroic efforts and determination of the volunteer and full-time structural firefighters who faced the fire head on.

In conclusion, Los Alamos and the surrounding communities suffered appalling losses in a disaster of the first order. But I am confident that they will rebuild stronger and better than before. The fire department, law enforcement, and emergency personnel who experienced this incident firsthand are all heroes. As for me and my team, we have shared in a piece of history that we will pass on to our children and grandchildren. We will certainly "remember Los Alamos!" ■

Burned-Area Emergency Rehabilitation

Postfire rehabilitation can reduce hazards such as falling snags and prevent property damage and resource degradation through flooding and erosion. After a major fire, a burned-area emergency rehabilitation (BAER) team is formed to assess fire damage and to implement a rehabilitation plan. BAER teams include specialists from many disciplines, such as biology, archeology, ecology, and geology. The teams organize volunteers to implement the rehabilitation plans.

The Cerro Grande BAER Team, formed in May 2000 following the Cerro Grande Fire near Los Alamos, NM, was the largest BAER effort in the history of the Nation. The team included dozens of representatives from Federal and State agencies throughout the West. Hundreds of volunteers turned out from Los Alamos, White Rock, and other towns across New Mexico to join in rehabilitation efforts by type 2 firefighters and contract workers for the U.S. Army Corps of Engineers (USACE). The BAER team:

- Obliterated firelines and removed hazards;
- Protected cultural and resource heritage sites;
- Spread straw and seeded burned areas with grass;
- Built terraces and erected silt fences;
- Improved or removed culverts to manage waterflow (tasks performed by the USACE and its contractors); and
- Filled more than 20,000 sandbags to protect against flooding, especially in and around White Rock.

In some areas, the fire's intense heat had left soils coated with waxy residues that diminish water absorption. Such "hydrophobic soils" are especially prone to erosion. Rehabilitation workers raked more than 500 areas with hydrophobic soils to improve their ability to soak up water.

Wildland Fire Management in the 20th Century

Gerald W. Williams

Conditions on many of our Nation's forests today are critical. Some 24 million acres of forestland in the interior West are exposed to a high risk of fire (Dombeck 2000). Large wildland fires are again on the rise (Pyne 1997), often with devastating consequences for lives, property, and ecosystem health.

Roots of the Crisis

The forest health crisis has roots more than 150 years old, when American Indians were removed from the land and their wildland burning ceased. For thousands of years, the Indians had used what today we would call prescribed fire to increase wildland resources such as game. Experiments have shown that burning can increase game by promoting browse. Almost 20 years ago, for example, an experiment in California (Heizer and Elsasser 1980) showed that deer counts rose from 30 per square mile (18 per km^2) in dense, unburned chaparral to 98 per square mile (60 per km^2) after the first year of burning. After a second year of burning, the deer count rose to 131 per square mile (81 per km^2), then dropped to 84 per square mile (52 per km^2) after the fifth and sixth years. Testimony from Indians shows that they knew very well that burning off the chaparral at certain intervals would increase the deer supply.

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The forest health crisis has roots more than 150 years old, when American Indians were removed from the land and their wildland burning ceased.

The aboriginal understanding that humans could influence ecosystems through the use of fire was all but lost when Europeans settled in North America. The white settlers came to believe that fire, both natural and Indian-set, could and should be controlled to prevent what they saw as the destruction of forests and grasslands. "While the destructive, potentially deadly side of fire was obvious and immediate," Federal policymakers noted (Federal Wildland Policy 1995), "the changes and risks resulting from these fire exclusion efforts were difficult to recognize and mounted slowly and inconspicuously over many decades."

Light Burning Controversy

In the 1890's, when the first forest reserves were established, the early conservation movement (including scientific forestry) was in its heyday. Foresters such as Gifford Pinchot, first Chief of the USDA Forest Service, shared the view that fire was the bane of the forests. Wildland fires, they believed, had to be eliminated in order for the forests to grow and thrive. Fires not only destroyed the standing trees, but also burned the fragile seedlings and young trees springing forth for the next forest generation. Fire was the moral and mortal enemy of the forests (Saveland 1995; Schiff 1962).

*Old redwood (*Sequioa sempervirens*) forest in California, converted to pasture through logging and repeated burning, 1903. "Cut-and-run" logging, often followed by heavy slash fires, devastated America's forests and galvanized public support for a National Forest System to protect remaining wildlands. Photo: Courtesy of National Agricultural Library, Special Collections, Forest Service Photograph Collection, Beltsville, MD (A. Gaskill, 1903; 48696).*

After the Forest Service's Mather Field Conference in 1921, protectionist policies triumphed, and concerted efforts began to stop all fires in the forests.

Fire Exclusion Was a Priority for the Early Forest Service

Henry Graves and William B. Greeley (second and third Chiefs of the Forest Service, respectively) firmly believed that stopping wildland fires was the key to forest health. In 1913, Chief Graves declared that "the necessity of preventing losses from forest fires requires no discussion. It is the fundamental obligation of the Forest Service and takes precedence over all other duties and activities" (Saveland 1995). Chief Greeley's autobiography begins with recollections of the great 1910 fires, which burned some 3 million acres (1.2 million ha) in the northern Rocky Mountains and were a formative experience for many early foresters. "Fire prevention is the No. 1 job of American foresters," he declared, and "smoke in the woods" should be the yardstick of progress in American forestry (Saveland 1995).

Results of experimental burning in the 1930's. The entire area was planted with seeds from slash pine (Pinus elliottii) *in 1930. The plot in the foreground was burned every year, whereas the plot in the background was protected from fire. The results in 1939 seem to show that burning is bad for pine regeneration. Until the 1960's, the Forest Service drew on such experiments to justify its policy of systematic fire control. Photo: Courtesy of National Agricultural Library, Special Collections, Forest Service Photograph Collection, Beltsville, MD (Clint Davis, 1939; 414238).*

Some settlers, especially in the American West and South, had adopted Indian burning techniques. In the late 1800's and early 1900's, such practices were known as "light burning" (sometimes derided as "Paiute forestry"). Forestry professionals considered light burning very destructive for young trees in some species, but beneficial to others. The Forest Service experimented with light burning in the late 1910's and concluded that it was dangerous (Graves 1920; Greeley 1920; Olmsted 1911; Roth 1920; Schiff 1962). Light burners were soon effectively stopped, although it took much longer to discourage light burning in the South and among American Indians (see the sidebar on page 17).

In 1921, Chief William B. Greeley arranged the first national conference on the subject of fire, the Mather Field Conference. Controversy had been raging for years between the proponents of light burning and the advocates of fire control. After the Mather Field Conference, as Jim Saveland (1995) put it, "the protectionist policies formulated by Coert duBois, Stuart Show, and E.I. Kotok became dominant." Fire control triumphed, and concerted efforts began to stop all fires in the forests (Pyne 1982).

But doubts lingered. As early as the 1930's, the Forest Service came to realize that in certain ecosystems fire was actually beneficial. "It has been a surprise and shock to many," wrote V.L. Harper (1937), "to learn that the whole South does not fall nicely into a simple national pattern in which the policy of complete fire exclusion uniformly applies. During the last few years there have been loud and

indignant protests from some quarters of the longleaf pine [*Pinus palustris*] belt against fervent, emotional fire-prevention propaganda." In 1932, Forest Service Chief Robert Y. Stuart issued a policy statement ("Federal Policy Relating to Controlled Burning in Cooperative Fire Protection in the Longleaf Pine Region") acknowledging the use of controlled burning in longleaf pine forest.

In fact, support for prescribed fire remained strong enough that V.L. Harper (1937) thought the Forest Service faced a policy choice. "There seem to be two different forms that a fire policy might take," he observed. "1. Should fire exclusion be the public policy with fire used only sparingly, if at all? 2. Should controlled burning be recognized in the public policy?" Until the 1960's, the Forest Service and other land management agencies almost exclusively chose the first alternative. Wildland fire management nationwide focused primarily on the swift and complete suppression of all wildland fires, and controlled burning was prohibited everywhere except in parts of the South.

Fire Protection Organization

From the 1890's to the 1930's, wildland firefighting by Federal forest rangers was minimally effective at best. Federal firefighters often limited their activities to extinguishing spot fires, fighting parts of large fires whenever safety seemed to permit, or "herding" fires until rains or snow put them out. Additional help, if any, came from nearby communities and farms, sometimes from cities. Training was reserved for the handful of Forest Service fire professionals. The

The Civilian Conservation Corps made a big difference in the Forest Service's ability to reduce fire losses and put out fires on Federal, State, and private lands.

Your Mission: Stop the Indians From Burning

Early foresters struggled for years to convince American Indians to stop their seasonal wildland burning, a traditional practice based on millennia of experience showing that controlled burning enhanced wildland resources such as game. In 1918, a district ranger on the Klamath National Forest, CA, in a letter to his forest supervisor (Harley 1918), suggested using missionary assistance to keep the Indians from burning:

There is this lady here, Mrs. Watkins, who has been here over a year doing general missionary work amongst the indians....My scheme is as follows—Let the [Forest] service hire this woman to work amongst the indians on a general educational basis.…[H]er duties would be to travel up and down the river between Orleans and Elliots, stopping at different indian houses, talking to them in regards to their own welfare, but the principal point to impress on them would be the fire question. This woman can do more in one season towards causing the indians to adopt our theories in regards to fire than we can do in five.

Prescribed burning in a longleaf pine (Pinus palustris) *forest in Florida, 1954. Despite the triumph of fire exclusion over light burning, prescribed fires continued on the Coastal Plain in the South to reduce hazardous fuels and eliminate competing hardwoods from open pine forests. Photo: Courtesy of National Agricultural Library, Special Collections, Forest Service Photograph Collection, Beltsville, MD (Daniel Todd, 1954; 476378).*

professional force was small, and there was no money to employ, let alone train, hundreds or thousands of auxiliary firefighters to fight the larger fires.

In 1933, with the advent of the Civilian Conservation Corps (CCC), thousands of young men were trained in firefighting techniques, then placed on firelines when needed. The CCC made a big difference in the Forest Service's ability to reduce fire losses and put out fires on Federal, State, and private lands. From this time on, the Nation fielded enough trained firefighters to control most wildland fires.

During World War II, wildland fires were projected as the enemy in ways similar to the war propaganda directed against the Germans and Japanese. Before the end of the war, Smokey Bear came to symbolize the national campaign against forest fires. In 1950, a real bear was located to represent Smokey; he was placed in the National Zoo in Washington, DC. One of the most widely recognized images in the media today, Smokey has influenced millions of young people through his famous slogan, "Only You Can Prevent Forest Fires" (Chase 1995; Lawter 1994; Lewis 1973; Morrison 1976; Robbins 1985). Unfortunately, Smokey became associated in the mind of the public with the 50-year legacy of fire control. "Ingrained with the Smokey Bear mantra that 'only you can prevent forest fires,'" noted George Wuerthner (1995), "most people view fire as a destructive force that must be contained and suppressed."

Today, wildland firefighting is almost a full-time occupation. Firefighting on the Nation's

A crew from the Civilian Conservation Corps (CCC) digging a fireline on the 1937 Deadwood Creek Fire, Challis National Forest, ID. Fire crews from the CCC finally gave the Forest Service the ability to control most wildland fires. Photo: Courtesy of National Agricultural Library, Special Collections, Forest Service Photograph Collection, Beltsville, MD (W.H. Shaffer, 1937; 354025).

Wartime poster against careless fire use, 1942–45. Before Smokey Bear, the Forest Service used various images to promote wildland fire prevention, including some that today would be rejected as ethnically offensive. Illustration: USDA Forest Service, Washington, DC.

wildlands involves highly coordinated efforts among many partners, including the Forest Service; the USDI Bureau of Land Management, National Park Service, and U.S. Fish and Wildlife Service; Indian tribes; State forestry departments; and local firefighting organizations (Haglund 1998). When professional firefighting forces are stretched thin (for example, during the 1988 Yellowstone Fires), troops from the National Guard and U.S. Army are called on to help.

Wildland firefighting can be very dangerous. On July 6, 1994, 14 firefighters perished on Storm King Mountain near Glenwood Springs, CO, when a fast-moving fire caught them on a mountainside (South Canyon Fire Accident Investigation Team 1994). Hazards for firefighters increase when excess fuels litter the forest floor or when shrubs and small trees form "ladders" for fires to climb to the tops of the tallest trees, killing the forest and savaging its soils for decades to come.

Reintroducing Fire

Land managers today are beginning to realize the value of fire in maintaining healthy forests (see sidebar). In the 1960's and 1970's, a sea change occurred: After more than half a century of vilifying wildland fire, the Federal agencies formally adopted the notion that not all fire is "bad" and that there was even a need to burn (Pyne 1982; Saveland 1995; Schiff 1962; Tall Timbers Research Station 1998). Prescribed fire had long been widely used to prepare areas for planting after timber harvest, but the purposeful introduction of fire into standing forests was new, except in the South.

Benefits From Fire Use

Ffolliott et al. (1996) and Wuerthner (1995) have documented ecological and other benefits from fire use. Under the right conditions, fire can beneficially be used to:

- Reduce ground fuel loading,
- Dispose of slash,
- Prepare for replanting (by reducing leaf litter, slash, and downed woody material),
- Thin overstocked, stagnated, diseased, or insect-infested forest stands,
- Increase plant growth (by reducing soil pathogens, recycling nutrients, changing hydrology, and releasing roots and foliage from competition),
- Improve wildlife and fish habitat,
- Keep a forest open and parklike, and
- Protect people and property from catastrophic wildland fires.

Prescribed burn in April 1994 on the Boise National Forest, ID. Wildland managers today are increasingly using fire for healthier ecosystems. Photo: Karen Wattenmaker, USDA Forest Service, Boise National Forest, Boise, ID, 1994.

Today, the Nation's wildland managers, with signs of strong support from portions of the public, are beginning to understand the role played by fire in sustaining healthy wildlands.

In the Federal Wildland Fire Management Policy adopted in 1995, fire use plays a central role in restoring our forests to health (Federal Wildland Policy 1995). As Federal policymakers declared, "Wildland fire will be used to protect, maintain, and enhance resources and, as nearly as possible, be allowed to function in its natural ecological role." But resistance to change remains. Even today, when most ecologists acknowledge the need to use Indian-type fires to restore a wildland mosaic of forest and grassland at various successional stages, the practice remains controversial, especially among fire control professionals (Williams 2000).

However, the Nation's wildland managers, with signs of strong support from portions of the public, are beginning to understand the role played by fire in sustaining healthy wildlands. "When Nat Stephenson, an ecologist with the National Biological Service working in the Sierra Nevada forest of California, sees the charred boles and snags of burnt trees, he smiles," observed George Wuerthner (1995). "He takes it as 'a sign that ecosystem processes are going along as they have in the past.'"

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"Paiute Forestry" or the Fallacy of Light Burning*

William B. Greeley

Editor's note: This article contributed to a controversy in the early 20th century between advocates of fire exclusion and proponents of "light burning," the use of low-intensity fire for fuels reduction and other purposes (for a defense of light burning, see the article by L.E. Wilkes on page 27). By deriding light burning as "Paiute forestry," Greeley disparages its folklore basis in wildland burning practices adopted from the American Indians. Greeley's views prevailed; until the 1960's, the USDA Forest Service worked to exclude fire from most of the Nation's wildlands. In 1978, recognizing that many ecosystems require frequent fire to thrive, the Forest Service formally abandoned the policy of fire exclusion in favor of using a mix of techniques, including prescribed fire, to protect lives, property, and wildland resources.

For nearly 20 years a drive has been made in the western states to put an end to the destruction of forests by fire. This effort has been backed by many timber owners and by state and municipal agencies with a fine spirit of co-operation. From year to year it has received more widespread support in public sentiment.

The goal of this effort has been to keep fires out of the forest. It has sought to make the woods as fireproof as practicable through the disposal of slashings; to reduce the number of man-caused fires by state control of the use of fire and by creating a public sentiment wide awake at all times to keep fire out of the woods; to detect small fires quickly by patrols and lookout stations; and to put fires out by the systematic organization of all the forces available in an emergency.

In a large measure the effort to stop destructive forest fires in the western states has been successful. Millions of acres of both private and public forests have been efficiently protected. Thousands of small fires have been put out before doing serious damage. Many thousands more have been prevented through law enforcement and the educational campaign which has enlisted the support of the hunter, the camper, the logger, the railroad operator, the herdsman and the settler. The effort has not prevented all forest conflagrations in seasons or localities of extreme drought. It has not yet solved certain problems in protecting forests which are still inaccessible stretches of wilderness or which are still undermanned or which are subject to exceptional hazards by reason of local climate or local social and industrial conditions.

> The protection of our western forests from fire is one of the finest accomplishments in forestry yet witnessed in the United States.

Bad fires still occur in European forests which have been under systematic protection and management for 200 years. We can expect no less in the inaccessible and thinly populated portions of our western states, which are exposed to climatic fire hazards as extreme as exist perhaps in any portion of the world. To condemn the methods of protecting the western forests because they have not prevented all fires would be as sensible as to condemn the fire-prevention work of our large cities because of the occasional Baltimore, San Francisco or Chelsea fire. The protection of our western forests from fire, in which work timber owners and associations have taken a leading part, is one of the finest accomplishments in forestry yet witnessed in the United States. One of its best features is that it has been brought about largely by the people of the western states themselves, and that its greatest asset today lies in the public sentiment of the West to keep fires out of the woods.

When he wrote this article, William Greeley was an assistant forester for the USDA Forest Service, Washington Office, Washington, DC. He went on to serve as Forest Service Chief from 1920 to 1928.

* This article first appeared in the March 1920 issue of *The Timberman.*

Burned and reburned area of coniferous forest in Washington, 1892. Such scenes appalled early American conservationists and inspired the leaders of the USDA Forest Service to pursue systematic fire exclusion. Photo: Courtesy of National Agricultural Library, Special Collections, Forest Service Photograph Collection, Beltsville, MD (C.A. Mosier, 1892; 22063).

What the Forest Burners Preach

It would seem unnecessary to uphold the protection of our western forests as a work commanding the support of every forester and timber owner in the United States, but a propaganda is now being preached which subtly strikes at the very roots of it. The advocates of light burning, or "Paiute forestry," assert that fire should not be kept out of the pine forests, by all odds the most extensive in our western states. Instead of keeping fire out of the western pineries, the advocates of this system propose to burn them regularly every few years. They claim that a succession of light fires will keep these forests clean of inflammable material without injury to the merchantable stumpage. The frequent burning up of small growth, underbrush and litter supposedly would thus protect the woods from serious conflagrations. It is even claimed that pine forests protected by this system will not burn, that their young trees will not be seriously injured; and the whole thing is to cost but a fraction of a cent per acre. This system is advocated by the Southern Pacific Railroad, which, because of its enormous federal land grants, is one of the two or three largest timber land owners in the United States. It is supported by other large timber-owning corporations, particularly in California. Light burning has been preached in articles appearing in *American Forestry* and in various lumber journals. It is, in fact, a substitute offered to the people of the western states for the present system of forest protection which has hitherto made such splendid headway.

The light burners claim that their scheme was practiced by the Indians in various western pine forests long before the advent of the white man, asserting that the noble redskin fired the forests regularly, not so much to facilitate his hunting or protect his dwelling as because his nature lore taught him that this was the way to prevent the "big" forest fire. Their scheme means nothing more or less than a continuation of the frequent ground fire which, whether started by Indians or by lighting, swept over many of our western pineries at frequent intervals prior to the coming of the whites and which was continued by the early hunters, prospectors, herdsmen and settlers.

Fire Conditions Ignored

The light burners proposed to "control" the destructiveness of the deliberate firing by burning the woods in the spring or fall when sufficiently moist to prevent the fire from seriously injuring either old timber or young trees. A careful study of the area where this system has been intentionally practiced shows that such control amounts to little or nothing. The light burners ignore certain basic facts about fire conditions in our western pineries. They ignore the rapidity with which evaporation under intense sunlight in warm weather dries up the litter in the pine woods. A south slope will be so dry as to make any fire exceedingly hot and destructive before a north slope will burn at all. Areas which will burn but lightly and irregularly early in the morning will flare up and consume in the most approved fashion by mid-afternoon. The moisture following light spring or fall rains often disappears so rapidly that the period of "safe" burning is a matter of hours, not of days. Actually to burn the western pineries, as the advocates of this theory propose to burn them, would, if it could be done at all, entail a cost for effective control many times greater than the cost of an efficient system of fire detection and suppression.

Light burning, in actual practice, is simply the old ground fire which has been the scourge of the western pineries, under a new name. Its use means a deliberate continuation of the destructive surface fires which were steadily and irresistibly eating up the pine forests of our western states until they were placed under protection. In every western state without exception, the pine forests have been thinned out, cut down in area, replaced here and there by brush or grass land, have often become diseased, and have lost much of the young growth which normally they should contain, as the result of fire. This has not been brought about by a few large conflagrations. It is the cumulative result of one fire after another extending over a period of 50–100 years. Every time a fire runs over these areas a few more old trees are hollowed out at the base so that the next high wind topples them over, a few more fine logs become infected with rot through surface scars, and more of the young growth by which nature constantly seeks to recover lost ground is crowded out by brush. If surface burning is not stopped, the end is total destruction, a destruction which, though less spectacular, is just as complete and disastrous as when a forest is consumed in a crown blaze that kills everything at once.

If surface burning is not stopped, the end is total destruction just as complete and disastrous as when a forest is consumed in a crown blaze that kills everything at once.

Some Forests Totally Destroyed

The total destruction of pine forests has actually been caused by repeated firing in many parts of the West. The National Forests of California alone, where light burning is most strenuously advocated, contain nearly two million acres of pure brush patches which formerly were heavily timbered. These brush patches cover nearly 14 percent of the timber belt in the National Forests of that state. That they were once pine forests is fully attested by the occasional snag or half dead tree still left standing, by the charred stumps, by tree roots half rotted in the ground. Those brush patches represent a loss to the forest resources of California today which we can safely put at 37 billion [board] feet of standing timber, with a value of probably $75,000,000; and that loss will go steadily on if light burning of the pine forests is permitted. In many other pine areas the stand of timber is not only much less than it should be because of frequent surface fires but has been reduced in volume and quality by disease which follows in the train of the fire. Incense cedar is one of the important trees in the California pine forests, but its timber is so defective that the lumberman has often been unable to log it at all. An intensive study of sample areas has shown that 84 percent of the rot in incense cedar is traceable directly to fire scars. A large proportion of the loss in volume and quality of pine stumpage, which is a normal thing in practically all western pine camps is due to the same cause.

Aside from the gradual wiping out of the mature timber in these virgin forests, the system of ground burning effectively cleans them of young tree growth. If all of the seedlings and saplings are not destroyed in the first or second fire, the third or fourth fire completes the job. It is absolutely impossible to ground burn large areas repeatedly and save any young growth on them. The actual fires of the light burner prove this, whatever he may claim. As a matter of fact the light burner does not want young growth. It is part of the inflammable debris which he would get out of the forest as to render a "serious" conflagration impossible. When the mature timber in a light-burned forest is cut, the forest is at an end. Its productivity ceases. It becomes a brush patch.

Light Burning Must Be Repeated

This is the real issue which has been raised by the advocacy of light burning. The best that can be said for the system is that it is a means for protecting mature timber, although at considerable loss in the stumpage projected, supposedly more cheaply than by an efficient system of detecting and putting out fires. Experience has shown that to protect the mature timber, light burning must be repeated regularly at least every three or four years. At every burning a lot of brush and young trees are killed but remain on the ground, furnishing the most inflammable of fire food. They must be removed by a later burning, which in turn leaves a certain amount of dead and inflammable material in its wake. The accumulation of litter from the needles and twigs of old trees, in itself, destroys the protective value of a

If the only solution lies in the uninterrupted destruction of young growth by light burning, we had better harvest our mature stumpage without more ado and then become a wood-importing nation.

light fire in three or four years. To carry out this theory of protecting old timber, the ground must be burned again and again and again. It is preposterous to assert that young trees can survive this process.

In other words, let us recognize frankly that light burning is simply part of the game of timber mining. To the gutting of heavy cutting it adds the gutting of total destruction to young growth. To cheapen the protection and utilization of old timber, it deliberately transforms the forest into a brush patch.

The issue raised by light burning is not what its advocates claim—the utilization of fire properly controlled as a means of forest protection. Everyone recognizes the utility of fire if properly controlled. The burning of slashings on cut-over land is often essential not only to eliminate a menace to adjoining stumpage but also to protect young growth existing on the cut-over land. It may even be wise to burn up some of the existing young growth in order to clean up the slashings and give the area greater safety from future fires. In Douglas fir areas in the Cascade range, where the new forest must be grown from seed in the ground, it is good forestry to burn an entire cut-over area cleanly under careful control. In most of our spruce, balsam and

Conversion of ponderosa pine forest to brushfields. The 1931 Quartzburg Fire on Idaho's Boise National Forest was so intense that it killed the pines in the draw near Grimes Creek (left). By 1950, in the absence of pine regeneration, brush covered the site (right). Until the 1960's, the Forest Service used such before-and-after photos to justify a policy of systematic fire exclusion. Ironically, fire exclusion exacerbated the problem by allowing fuels to build up, feeding abnormally intense fires that could eliminate forest cover for generations. Photos: Courtesy of National Agricultural Library, Special Collections, Forest Service Photograph Collection, Beltsville, MD (left—G.W. Craddock, 1931, 263934; right—G.W. Craddock, 1950, 463327).

Aside from the gradual wiping out of the mature timber in these virgin forests, the system of ground burning effectively cleans them of young tree growth.

hardwood forests, part or all of the new timber growth is or should be on the ground at the time of cutting. If the land is not to be denuded and its productivity brought to an end, that young growth must be preserved as far as possible and the firing must be done so as to preserve it.

The issue raised by light burning is rather whether or not our forest protection in the West is to be the kind of protection which conserves and promotes tree growth, or whether it is to be simply an adjunct of timber mining. It is for this reason that I stated with conviction at the beginning of this article that light burning strikes at the roots of our forest protection effort in the western states. The people living in and near the western pineries have been taught to believe that fire must be kept out of the woods. To a surprising degree they have recognized the truth of that slogan. They have supported state legislation and private associations based upon that principle. They have come to believe that fire and forest growth do not go together. Their support of a genuine system of forest protection has been not only to save their virgin stumpage but also to perpetuate their vast pineries which mean so much to the economic future of the West.

Incendiarism Gets Encouragement

Now comes an insidious doctrine telling everyone that this system of fire protection which has been built up with so much effort is unnecessary; that all we need to do with our western pine forests is to "touch 'em off." The plausible arguments advanced in advocacy of light burning make this proposal exceptionally dangerous. It weakens the confidence of the general public in real fire protection. It weakens the support given by timber land owners to organized protective efforts such as state and federal agencies and many associations have been successful in bringing about. It tends to block progressive fire legislation in the western states. It tends to encourage incendiary fires by the settler, prospector or stock grower who has reasons of his own for wishing to clear the woods. It is a direct challenge to a national policy of forestry for it strikes unmistakably at the effort to keep timber lands productive rather than permit them to become waste.

It goes without saying that we all recognize the difficulty in protecting the western forests efficiently from fire. If the only solution lies in the uninterrupted destruction of young growth by light burning, we had better harvest our mature stumpage without more ado and then become a wood-importing nation. But that is not the solution. Billions of acres of National Forest pine lands demonstrate the results of 15 years of successful protection from ground fires. In these forests the brush patches are disappearing in thickets of vigorous pine reproduction. The actual growth of timber has been increased several times over what it was during the days of periodic fire. Not only is the merchantable stumpage fully protected but the growth needed to supply our future requirements is now taking place.

We can have real forests, full of growth and promise for the future, in our pineries generally if all interests get behind a real program of fire protection. This means a harder and more united effort by all agencies, public and private. It means progressive state legislation which will require the disposal of slashings on cut-over lands and enlist all forest owners in organized fire prevention. We should also have federal legislation which will give the Forest Service much greater resources for co-operating with local agencies in fire protection.

Fire Protection Wanted

Doubtless we cannot absolutely prevent the occasional destructive forest fire any more than it has been possible to prevent it in the European forests. A considerable portion of southern Europe has a fire problem analogous to that in the western United States. This protection problem has not been solved, as certain advocates of light burning assert, by the custom of making fagots from limbs and twigs. Fagot making is a negligible factor in European fire protection for the same reasons that it would be in the western United States, because it has such a relatively

small effect upon the actual inflammability of the forest. Fire protection has been brought about in southern Europe by the same methods through which it must be brought about in the western United States, by an organized system of detection and suppression, in which improvements and intensive use of the forests are the principal factors. And still southern Europe has its occasional bad fires which are just as destructive as any that have occurred in the western pineries.

We can, as in Europe reduce the destructive fires to a negligible average or aggregate loss if our efforts are concentrated upon a genuine system of fire protection. The only kind of protection which this system must admit is one which promotes the productivity of our forest lands in the long run. In building up this kind of forest protection, the public has the right to expect the co-operation of the large western timber owners who have acquired enormous holdings under the liberal policy of the government in disposing of its public domain, and particularly of the large railroad companies whose enormous grants of public timber land should be regarded as a public trust.

We should no more permit an essentially destructive theory, like that of light burning, to nullify our efforts at real forest protection than we would permit the advertisement of sure cures for tuberculosis to do away with the sanitary regulations of cities, the tuberculosis sanitaria, fresh air for patients, and the other means employed by medical and hygienic science for combatting the white plague. ■

How Lethal Is Fire to Pines?

Former USDA Forest Service Chief William B. Greeley makes an articulate case that frequent low-intensity fire in pine destroys mature timber and prevents regeneration. However, in the past 80 years we have learned that many pines evolved with and depend on recurring fire. Based on the Forest Service's Fire Effects Information System (on the Forest Service Website at <http://www.fs.fed.us/database/feis>), the following paragraphs summarize aspects of fire ecology in two important pine species of the interior West—ponderosa pine and lodgepole pine.

Ponderosa Pine

Interior ponderosa pine (*Pinus ponderosa* var. *scopulorum*) depends on frequent surface fires to maintain stand health and stability. Fire intervals under natural fire regimes vary from 2 years to about 25 years, depending on site conditions and geographic area.

Thick, exfoliating bark and a deep rooting habit make large trees tolerant of most surface fires. Mature trees tend to self-prune lower branches, thereby reducing the potential for fire to climb into crowns. Trees burned during the dormant season are often able to survive extensive crown scorch damage because buds are large and enclosed within thin, insulating scales.

Ponderosa pine communities often have a grass layer that readily ignites. Frequent low-intensity fires are beneficial because they create a favorable seedbed by exposing bare mineral soil and removing competing vegetation. Fire also opens the stand structure, removing potential ladder fuels. However, postburn establishment is successful only when a good seed crop coincides with above-average rainfall.

Lodgepole Pine

Rocky Mountain lodgepole pine (*Pinus contorta* var. *latifolia*) is adapted to various fire regimes. Depending on site conditions and geographic area, natural fire intervals include low- to mid-severity fires that occur every 25 to 50 years, and high-severity, stand-replacing fires that occur every 250 to 300 years.

Lodgepole pine has thin bark with poor insulating properties, so many trees are killed by surface fires. However, low-intensity fires generally thin rather than destroy lodgepole pine stands, releasing surviving trees from competition and promoting growth.

After stand-replacing fires, recovery tends to be rapid as new trees establish from seed released by serotinous cones (cones that remain closed until opened by fire). Serotinous cones store up to 10 years of annual seed production, blanketing the exposed forest floor within 3 years after a major fire. Most lodgepole pine stands also have cones that release seeds without extreme heat, allowing for rapid regeneration when surface fires expose mineral soil. Lodgepole pine produces seed at an early age, so postfire seedlings contribute to seedfall within about 10 years.

Preservation of Forests: Judicious Firing of Debris in Wet Autumn Is Urged*

L.E. Wilkes

Editor's note: This article makes part of the case for "light burning," the use of low-intensity fire for fuels reduction and other purposes (for the counterargument, see the article by William B. Greeley on page 21). Now known as prescribed fire use, light burning derived from folk practices adopted from wildland burning by the American Indians. Once widely accepted by the general public, light burning was fiercely contested by early conservationists, who contended that it led to forest destruction. By the late 1920's, their views had prevailed. Today, much of the public continues to regard all fire use with deep suspicion.

The question of the preservation of our forests, until they can be turned into a merchantable product, is one of vast importance to our State [Oregon], therefore the following suggestions may be of interest, if not valuable, to those who have an interest in the matter.

By firing extensively over tracts where there is much offal, not only the danger of fires can be averted, but much useless material be put out of the way.

Fire for Fuels Management

This season [autumn] offers an opportunity to employ what I deem the best means of preventing the ravages of forest fires. Much of the debris on the ground in our forests would now burn, if properly fired, and there is no danger of devastating fires getting started this fall. It is very seldom, if at all, that valuable timber is injured by fire, except where there is a large amount of dry, dead material on the ground. This debris consists of the tops and broken trunks of fallen trees, limbs broken off by snow and wind, the fallen leaves, etc. These, when very dry, burn with great heat, and thus the fire is carried to the tree tops, where the real damage is done. In timber, forest fires do little or no damage so long as the leaves are not burned off the trees. Therefore, if systematic work be done by firing extensively over tracts where there is much offal, not only the danger of fires can be averted, but much useless material be put out of the way.

It may not be practicable to do this firing over the whole of our large forest areas, but there is no question of its value or practicability where the country is settled up. Each farmer can render his property comparatively safe by destroying the means by which fires from a distance can be readily communicated to his property. Of course, this is no news to a large majority of the settlers on the timbered lands, but the laws are very strict on the matter of setting out fires. With this law or its intentions I have no fault to find, except that systematic firing, at the proper time, should be encouraged. This, if done, would render such laws useless, except, perhaps, in the very dryest days of the very dryest seasons. We all know that fire will not run without something to burn, and in the forests the conditions must all be favorable, and even then it is comparatively seldom that it attacks and kills the forest trees. The vast areas of "burnt woods" in this state may be cited as evidence that my conclusion is not correct; but from personal examination of a great deal of burnt timber in the Coast range of mountains, I am convinced that the damage done by forest fires has been greatly overestimated.

It must be remembered that trees and forests grow old and eventually die from old age, if not otherwise. A forest in which the majority of the trees are far past the prime of life is far more liable to be ravaged by fire than where they are in the vigor of middle age. On most of the burnt areas of this country the forests had grown old and perhaps were far on the down-hill side of life.

When he wrote this piece, L.E. Wilkes was a private citizen living in Hillsboro, OR.

* This article appeared as a letter to the editor in *The Oregonian* on September 22, 1899.

Inevitability of Fire

If where those whitened trunks now stand there remained the splendid forests as of old, it might be many years yet before an ax or saw would touch them. Each year was bringing closer the time when fire was to do its work, and it matters but little when it should occur, except in a few instances, where a small amount of the timber would have been cut.

I believe that the interests of the forests of this State would be better protected if the officers now in the field, instead of being provided with handcuffs and weapons, were well supplied with matches, to use and give away. Of course, this is the other extreme, and between the two extremes lies the true mean. It may be argued that it is impracticable to burn out this debris as above indicated, but every one knows that to prevent forest fires entirely is simply impossible. Therefore it is in the interest of all concerned to look for some better means of protecting this very important resource of western Oregon. ■

Guidelines for Contributors

Editorial Policy
Fire Management Today (*FMT*) is an international quarterly magazine for the wildland fire community. *FMT* welcomes unsolicited manuscripts from readers on any subject related to fire management. Because space is a consideration, long manuscripts might be abridged by the editor, subject to approval by the author; *FMT* welcomes short pieces of interest to readers.

Submission Guidelines
Submit manuscripts to either the general manager or the managing editor at:

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Attn: April J. Baily, F&AM Staff
P.O. Box 96090
Washington, DC 20090-6090
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If you have questions about a submission, please contact the managing editor, Hutch Brown.

Paper Copy. Type or word-process the manuscript on white paper (double-spaced) on one side. Include the complete name(s), title(s), affiliation(s), and address(es) of the author(s), as well as telephone and fax numbers and e-mail information. If the same or a similar manuscript is being submitted elsewhere, include that information also. Authors who are affiliated should submit a camera-ready logo for their agency, institution, or organization.

Style. Authors are responsible for using wildland fire terminology that conforms to the latest standards set by the National Wildfire Coordinating Group under the National Interagency Incident Management System. *FMT* uses the spelling, capitalization, hyphenation, and other styles recommended in the *United States Government Printing Office Style Manual*. Authors should use the U.S. system of weights and measures, with equivalent values in the metric system. Try to keep titles concise and descriptive; subheadings and bulleted material are useful and help readability. As a general rule of clear writing, use the active voice (e.g., write, "Fire managers know…" and not, "It is known…"). Provide spellouts for all abbreviations. Consult recent issues (on the World Wide Web at <http://www.fs.fed.us/fire/planning/firenote.htm>) for placement of the author's name, title, agency affiliation, and location, as well as for style of paragraph headings and references.

Tables. Tables should be logical and understandable without reading the text. Include tables at the end of the manuscript.

Photos and Illustrations. Figures, illustrations, overhead transparencies (originals are preferable), and clear photographs (color slides or glossy color prints are preferable) are often essential to the understanding of articles. Clearly label all photos and illustrations (figure 1, 2, 3, etc.; photograph A, B, C, etc.). At the end of the manuscript, include clear, thorough figure and photo captions labeled in the same way as the corresponding material (figure 1, 2, 3; photograph A, B, C; etc.). Captions should make photos and illustrations understandable without reading the text. For photos, indicate the name and affiliation of the photographer and the year the photo was taken.

Electronic Files. Please label all disks carefully with name(s) of file(s) and system(s) used. If the manuscript is word-processed, please submit a 3-1/2 inch, IBM-compatible disk together with the paper copy (see above) as an electronic file in one of these formats: WordPerfect 5.1 for DOS; WordPerfect 7.0 or earlier for Windows 97; Microsoft Word 6.0 or earlier for Windows 97; Rich Text format; or ASCII. Digital photos may be submitted but must be at least 300 dpi and accompanied by a high-resolution (preferably laser) printout for editorial review and quality control during the printing process. Do not embed illustrations (such as maps, charts, and graphs) in the electronic file for the manuscript. Instead, submit each illustration at 1,200 dpi in a separate file using a standard interchange format such as EPS, TIFF, or JPEG (EPS format is preferable, 256K colors), accompanied by a high-resolution (preferably laser) printout. For charts and graphs, include the data needed to reconstruct them.

Release Authorization. Non-Federal Government authors must sign a release to allow their work to be in the public domain and on the World Wide Web. In addition, all photos and illustrations require a written release by the photographer or illustrator. The author, photo, and illustration release forms are available from General Manager April Baily.

Franklin Awards Honor Achievements in State and Local Cooperation

April J. Baily

Ensuring that all citizens benefit is a critical part of the USDA Forest Service's Cooperative Fire Protection programs. Therefore, it is vital to encourage increased interaction by our State forestry fire service cooperators with underserved communities.

Franklin Awards Established

With this goal in mind, José Cruz, Director of the Forest Service's Fire and Aviation Management (F&AM), has established four annual awards to recognize outstanding efforts by State forestry service employees, units, or groups in outreach to underserved communities. Named for Benjamin Franklin, the founder of the volunteer firefighting force, the awards are for:

- Volunteer fire assistance (VFA),
- State fire assistance (SFA),
- Assistance in transmitting Federal excess personal property (FEPP), and
- Overall service.

The 1999 awards were presented on September 22, 1999, at the annual awards banquet for the National Association of State Foresters in Harrisburg, PA. Harry Croft, Deputy Director of F&AM, made the presentations. Each awardee received an attractive trophy bearing the likeness of Benjamin Franklin.

April Baily is the Federal Excess Personal Property program officer for the USDA Forest Service, Fire and Aviation Management, Washington, DC; and the general manager of Fire Management Today.

The Franklin Awards recognize outstanding efforts by State employees, units, or groups in fire protection outreach to underserved communities.

VFA Award

The Forest Service's VFA program is designed to help smaller communities improve (or begin) fire protection. The Franklin Award for VFA goes to the State that demonstrates the best outreach to help underserved communities improve the fire protection they offer their people.

Franklin Award trophy for outstanding achievements in fire protection outreach to underserved communities. Photo: Jan Amen, Texas Forest Service, Lufkin, TX, 1999.

F&AM is pleased to announce that the 1999 Franklin Award for VFA was presented to the State of Arkansas Forestry Commission for the strength and focus of the Commission's work with rural communities through its Rural Fire Protection Program. The program encourages and assists in the establishment, development, and operation of fire protection districts and associations in rural areas that have little or no fire protection. Through the program, the Arkansas Forestry Commission:

- Publishes a comprehensive booklet that contains procedures and information critical to a fledgling fire department;
- Disseminates information at city council or community meetings and issues a monthly informational fax to the fire services coordinator in every county, telling about the program and equipment available;
- Has pioneered revolving loans for the purchase of new equipment, providing more than $418,000 in interest-free loans in 1998 alone; and
- Uses two full-time trainers and a new interactive multimedia simulator to provide statewide training in wildland fire suppression.

Thanks to Franklin Award Judges

Nominations for the Franklin Awards came for many deserving parties. The Forest Service assembled an excellent panel of judges, people committed to fairly applying Government assistance and to providing fire protection to underserved communities. Panel members were:

- Malcolm Gramley, cooperative fire operations officer, Northeastern Area, Forest Service, Radnor, PA;
- Judy Kissinger, public affairs specialist, Washington Office, Forest Service, Washington, DC;
- Joan O'Hara Wehner (nonvoting), business manager, National Association of State Foresters; Washington, DC;
- Mary Owens, civil rights specialist, Washington Office, Forest Service, Washington, DC;
- Craig Sharman, government affairs representative, National Volunteer Fire Council, Washington, DC; and
- Bill Webb, Executive Director, Congressional Fire Services Institute, Washington, DC.

The six judges each gave us a day of their time to examine the nominations and evaluate their merits. Each deserves sincere thanks.

Since 1979, rural Arkansas fire departments have increased in number from 300 to more than 1,000, providing greatly improved fire protection to Arkansan homes, jobs, businesses, farms, and timberland. Thanks to grants and equipment from the Arkansas Forestry Commission and other sources, most communities have reduced their insurance ratings (the basis for establishing the cost of insurance policies, which depends partly on the quality of fire protection available in the area), saving 22 to 30 percent on homeowners' insurance. The real savings, of course, are in lives not lost and homes and businesses not destroyed.

SFA Award

The Forest Service's SFA program provides financial assistance, technical training, and equipment to ensure that Federal, State, and local agencies can deliver a coordinated response to wildland fire. The Franklin Award for SFA goes to the State that demonstrates the best use of SFA to help underserved people.

F&AM is pleased to announce that the 1999 Franklin Award for SFA was presented to the Texas Forest Service for reducing losses to Texas communities through its fire prevention efforts. On most wildland fires, Texas relies on volunteer fire departments (VFD's) for initial attack and suppression. VFD's in Texas serve some 1,800 communities with populations of less than 10,000. In severe fire years, the financial and manpower strain on VFD's in underserved communities is tremendous.

John Shannon (left), State Forester, Arkansas Forestry Commission, admires the Franklin Award for Volunteer Fire Assistance presented to him by Harry Croft (right), Deputy Director, Fire and Aviation Management, USDA Forest Service. Photo: Alex Day, Pennsylvania Department of Natural Resources, Spring Mills, PA, 1999.

We gratefully acknowledge the outstanding efforts of all our State partners to ensure fire protection for all Americans.

Lowering fire occurrences through prevention work not only reduces the strain on overtaxed VFD's, but also saves precious natural resources. But when fire conditions grow dangerous, few volunteer firefighters can afford to take time off from jobs for extended fire prevention work. Also, dangerous fire conditions are typically regional in nature, reducing the effectiveness of any single fire department in delivering the fire prevention message.

In 1997, the Texas State Forester approved a pilot project to reduce fire ignitions through an intensive regional fire prevention campaign, including the use of a cooperative wildland fire prevention/education team. The project's success prompted additional prevention team mobilizations. Overall, the Texas Forest Service's wildland fire prevention program has:

- Reduced the number of wildland fires and associated losses,
- Educated millions of Texans statewide on the need for fire safety,
- Increased news media coverage of fire danger and incorporation of fire safety messages,
- Allowed small communities and VFD's to focus their scarce resources on emergency response and fire suppression, and
- Increased interest nationwide in the mobilization and use of fire prevention teams.

FEPP Award

The Forest Service's FEPP program helps State and local fire services obtain firefighting equipment that might otherwise be unaffordable. The Franklin Award for FEPP goes to the State that demonstrates the best outreach to help underserved communities equip themselves for fire protection.

F&AM is pleased to announce that the 1999 Franklin Award for FEPP was presented to the Arkansas Forestry Commission for its Rural Fire Protection Program. The program screens and acquires trucks and other equipment for local fire departments. In the last 5 years, 948 vehicles—valued at more than $14 million—have been acquired and placed with local departments. Of these, 188 were rebuilt into complete fire trucks by the State. In many instances, the placing of this equipment has provided the community with its only fire equipment and has allowed the formation of a VFD.

Director's Award

The F&AM Director's Franklin Award recognizes the best overall effort to assist underserved citizens in fire protection, whether through the VFA, SFA, and/or FEPP programs.

James B. Hull (left), State Forester, Texas Forest Service, receives the Director's Franklin Award from Harry Croft (right), Deputy Director, Fire and Aviation Management, USDA Forest Service. Photo: Alex Day, Pennsylvania Department of Natural Resources, Spring Mills, PA, 1999.

F&AM is pleased to announce that the coveted Director's Franklin Award for 1999 was presented to the Texas Forest Service's Forest Resource Protection Department, Rural Fire Defense. The program's guiding principles include placing top priority on volunteer firefighter safety, minimizing bureaucracy, maximizing local decisionmaking, and establishing one-stop shopping for VFD's. In more than living up to its own high principles, the Texas Forest Service has, in a 3-year period:

- Processed nearly 8,000 requests for assistance;
- Helped the FEPP program place 609 vehicles and more than 1,800 other items with VFD's at no cost to them;
- Distributed 611 pieces of VFA cost-share equipment, including 30 trucks, 83 slip-on units, 13 nationwide radio systems, and 485 dry hydrants;
- Established a program for using donated equipment from industry, businesses, local governments, and State agencies to equip VFD's at no cost;
- Warehoused personal protective equipment and wildland fire equipment for sale to VFD's, at a cost savings averaging 40 percent;
- Established a risk pool to provide liability insurance to VFD's, saving local fire departments an average of 40 percent; and
- Provided emergency assistance to VFD's when their equipment is damaged or destroyed, or when their area of protection outgrows their ability to provide protection.

Nominations for Future Awards

F&AM congratulates our 1999 Franklin Award winners and gratefully acknowledges the outstanding efforts of all our State partners to ensure fire protection for all Americans. Nominations for the Franklin Awards are due each year by May 31. For nomination forms and information on how to nominate units, groups, or individuals, contact your regional director for F&AM or write to Director, Fire and Aviation Management, P.O. Box 96060, Washington, DC 20090-6090. The information is also available on the Forest Service F&AM Website at <http://www.fs.fed.us/fire/planning/franklinannounce1.htm>. ■

Websites on Fire*

Wildland Fire Aviation

For information on wildland fire aviation, a good place to start is the Websites maintained by the USDA Forest Service's Fire and Aviation Management Staff. The Wildland Fire Aviation Website is full of operational information, mostly related to fixed-wing aircraft. The Website contains such helpful features as airtanker startup and cutoff times, aircraft descriptions and locations, and aircraft identification guides. It also contains a draft interagency airtanker base operations guide and an online version of *Bear Air*, the Forest Service journal on wildland fire aviation.
Found at **<http://www.fs.fed.us/fire/aviation>**

Aviation Safety

This Website maintained by the USDA Forest Service's Fire and Aviation Management Staff focuses on aviation safety. It contains a list of Forest Service aviation offices and staffs by region, as well as a staff directory. A useful feature is the library of publications and videotapes, which contains a glossary of special aviation terms. There are separate Webpages for tracking safety concerns and aviation mishaps, as well as for training materials and schedules. A news page offers information on recent accidents and safety alerts, and there are links to related Government and aviation Websites.
Found at <**http://www.aviation.fs.fed.us**>

* Occasionally, *Fire Management Today* briefly describes Websites brought to our attention by the wildland fire community. Readers should not construe the description of these sites as in any way exhaustive or as an official endorsement by the USDA Forest Service. To have a Website described, contact the managing editor, Hutch Brown, at USDA Forest Service, 2CEN Yates, P.O. Box 96090, Washington, DC 20090-6090, tel. 202-205-1028, fax 202-205-0885, e-mail: rbrown/wo@fs.fed.us.

Fifteen Smokey Awards Presented for 1999

Dianne Daley Laursen

The national Cooperative Forest Fire Prevention (CFFP) partnership program presented 15 Smokey Bear Awards to honor sustained, outstanding contributions to wildland fire prevention in 1999. The awards include 2 Golden Smokeys, the highest honor; 3 Silver Smokeys; and 10 Bronze Smokeys. All the awards recognize at least 2 years of outstanding service in wildland fire prevention. Award winners received Smokey Bear statuettes presented by the National Association of State Foresters (NASF), the USDA Forest Service, and The Advertising Council at ceremonies across the Nation. Other worthy projects, particularly those with future award potential, were recognized through certificates.

The Smokey Awards honor sustained, outstanding contributions to wildland fire prevention.

Golden Smokey Awards

The Golden Smokey Award is presented for a proven record of service in wildland fire prevention on a national level. The two winners for 1999 are Paul S. Newman and Lewis F. Southard, Jr.

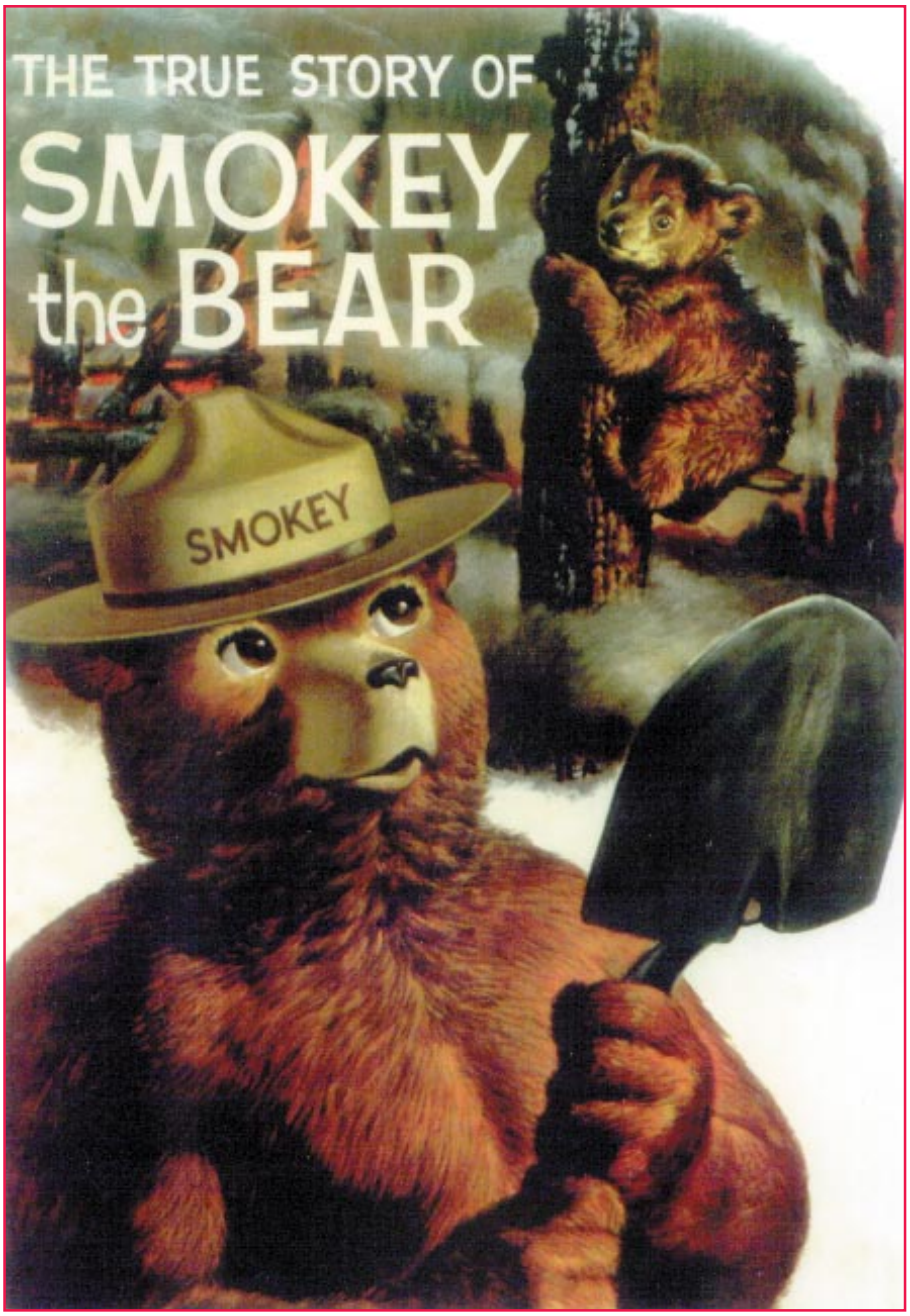
Paul Newman (deceased), a freelance writer who lived in Columbia, MD, wrote thousands of comic scripts, including many for Smokey Bear. His work gave impetus to the Smokey Bear program during its early years and is still seen and enjoyed by millions, notably in the familiar comic book *The True Story of Smokey Bear*. From 1957 to 1960, under the byline Wes Woods, Newman wrote a daily newspaper comic strip that helped to characterize Smokey Bear. His strip reached tens of millions of readers and can still be enjoyed today. In preparing the strip, Newman worked closely with the Forest Service, which provided information about wildland ecology and reviewed the script. Newman then detailed in each panel what the artist should draw. To promote dialogue and storylines, he invented sidekicks for Smokey, such as Specs the raccoon.

Lou Southard, a forest protection team leader for the Virginia Department of Forestry in Charlottesville, VA, is a recognized leader in wildland fire prevention whose work has been adopted for national use. He established a partnership between the National Wildfire Coordinating Group (NWCG) and Project Learning Tree to enable thousands of high school students to learn about fire ecology and prevention. Since 1992, as a member of the NWCG Wildland Fire Education Working Team, Southard initiated numerous projects, including a fire prevention

Carol Newman (center) receives the Golden Smokey Award on behalf of her husband, Paul S. Newman, joined by her stepdaughter Lisa Newman (left). Presenting the award is Maryland State Forester Jim Mallow.

Dianne Daley Laursen is the National Symbols Program operations manager for the USDA Forest Service, St. Paul, MN.

bibliography for posting on the NWCG Website, a set of nationally distributed fire prevention video news releases, and fire prevention programs for schoolchildren. Following major ice storms in Virginia in 1996–97, Southard prepared an original fire prevention campaign, including exhibits, posters, and other materials, some of which were adopted by NASF and other States. Using geographic information systems, he prepared maps showing statewide fire risk, a method that the NWCG extended nationwide in the training course "Wildland Fire Prevention Planning" (P–301). He also supervised the development of the Virginia Wildland Urban Interface program, which the National Fire Protection Association adopted as a model for its firewise workshops.



Cover of the comic book The True Story of Smokey Bear*, created by Paul S. Newman. Mr. Newman, winner of the 1999 Golden Smokey Award, was posthumously recognized for reaching millions with wildland fire prevention messages through his many comic strips featuring Smokey Bear.*

Silver Smokey Awards

The Silver Smokey Award is presented for a proven record of service in wildland fire prevention in regional (multistate) areas. For 1999, Silver Smokeys went to James Brenner, Kelly Klein, and Jon Skinner.

Jim Brenner, a fire management administrator for the Florida Division of Forestry in Tallahassee, FL, has long promoted Florida's rich tradition of prescribed fire, a key to wildland fire prevention through fuels management. In 1987, he created the Nation's first Certified Prescribed Burn Manager Program, followed in 1988 by a "Smokey and the Pros" baseball trading card series. In 1990, he designed a data base for managing prescribed burn authorizations in Florida and then helped other States start similar systems. He authored Florida's 1990 Prescribed Fire Act, used as a model by other Southeastern States. To get out the fire prevention message, Brenner has developed educational materials for high school students; produced a TV video and appeared on national television; and helped design and promote "Through the Flames," a painting by Paco Young in 1999 that shows firefighters battling a blaze in Florida's wildland–urban interface.

Kelly Klein, the radio news director for Roberts Broadcasting Company, Ironwood, MI, produces a highly successful radio program with wildland fire prevention messages. In gathering information for the program, Klein has formed a voluntary partnership with the local ranger district,

Lewis F. Southard, Jr., holds the Golden Smokey Award presented to him by Virginia State Forester Jim Garner (left) and Virginia Congressman Virgil Goode (right).

broadcasting special fire danger warnings or burning restrictions on request. Dubbed "Fire Watch" and launched in 1994, the program airs during snow-free periods four times daily, 5 days per week. The broadcast reaches audiences in Wisconsin, Michigan, and Minnesota. Listeners hear about current fire danger, fire activity, and requirements for burning permits, and they are warned that they will be held responsible for any fires they cause. In the drought year of 1998, no major human-caused fires occurred in the listening area, an indication of the program's success.

Jon Skinner, a fire prevention and training specialist for the USDI Bureau of Land Management's Idaho State Office in Boise, ID, has been a proactive leader in Great Basin wildland fire prevention activities for several years. A member of the Great Basin Fire Prevention/Education Committee since 1997 and currently its chairman, he personally crafted and maintains the committee's Website. He also coordinated the 1999 Great Basin Interagency Fire Prevention Workshop, helping to bring funding and support from the Federal Emergency Management Agency to the Great Basin. He also promoted a series of committee publications, including *Living With Fire*, a tabloid focusing on fire safety in the wildland–urban interface, and *Learning To Burn…Safe*, a guide to safe burning practices for farmers and homeowners. Skinner initiated the first Idaho Public Conference on Wildland Fire, designed to build public awareness of fire dangers in the wildland–urban interface, and he was instrumental in establishing Idaho Fire Prevention Week. His determination secured funding for a series of regional radio and television public service announcements focusing on risk factors in the wildland–urban interface.

Bronze Smokey Awards

The Bronze Smokey Award is presented for outstanding contributions to statewide wildland fire prevention efforts. The 1999 award winners are Georgean Burton and Cory Child, the California Federation of Women's Clubs, Randy Eardley, Harry Kepler, Sue McCourt, Don and Mary Ohrt, Gerald Parsons, Ed Smith, Matt Weinell, and Teresa Winovitch.

Georgean Burton and **Cory Child**, residents of Sundance, UT, began working 10 years ago to reduce the threat of wildland fire in the growing wildland–urban interface near their small community. They helped procure training for 20 volunteer wildland firefighters at the local fire station; and they challenged local covenants, obtaining permission to clear vegetation from around the station to provide defensible space as a model for area homeowners. Their accomplishments include coordinating fuels reduction along the community's only access road, initiating cleanup days to encourage area residents to remove fuels from around their homes, and working with local homeowners to rebuild roofs with fire-resistant materials.

The **California Federation of Women's Clubs** (CFWC), a volunteer service organization headquartered in Fresno, CA, is dedicated to promoting education and preserving natural resources for community improvement and the betterment of society. For years, the CFWC has supported the California Department of Forestry and Fire Protection (CDF) in preventing and managing wildland fires. Since 1977, the CFWC has cosponsored the CDF's Coins for Conservation program, generating thousands of dollars in supplementary funds for fire prevention and education. CFWC activities also include establishing a Smokey Bear traveling museum, staffing telephone banks during wildland fires,

holding Smokey Bear poster contests for children, and distributing bumper stickers with fire prevention messages.

Randy Eardley, a writer/editor/prevention officer for the Bureau of Land Management's Idaho State Office in Boise, ID, has contributed to wildland fire prevention for many years. A veteran of one of the first cooperative wildland fire prevention/education teams (in New Mexico in 1996),* Eardley has created numerous educational brochures and public service announcements to promote wildland fire prevention, many on behalf of the Keep Idaho Green Fire Prevention Task Force. For example, he wrote and designed brochures to help reduce the incidence of spark arrester fires and to inform Idaho residents of wildland fire dangers and firesafe landscaping techniques. In 1999, he designed a highly successful display for the Idaho Public Conference on Wildland Fire: Strategies to Protect Your Home and Family. The display has been used all over Idaho at fairs, rodeos, and other events.

Harry Kepler, a fire specialist for the Alabama Forestry Commission in Northport, AL, has been instrumental since 1993 in organizing the Wildland Urban Interface Project in Alabama's burgeoning wildland–urban interface in Jefferson and Shelby Counties. Designed in part to educate the public about fire prevention in the wildland–urban interface, the project has generated displays and educational materials (including a video) for homeowners. Kepler helped recruit firefighters for a door-to-door firesafe campaign and persuaded a local community college to begin offering the NWCG course "Fire Operations in the Urban Interface" (S–205). Many volunteer fire departments now require the course. Since the project's inception, the number of fires, acres burned, and structures lost has declined in Jefferson and Shelby Counties.

Sue McCourt, a fire prevention officer for the Forest Service, Plumas National Forest, Beckwourth Ranger District, Blairsden, CA, has made outstanding contributions to wildland fire prevention since 1993, particularly in training and education. She has taught basic fire prevention to interagency personnel for many years, and in 1993–96 she coordinated the NWCG course "Intermediate Fire Prevention" (P–240). As chair of the California Regional Fire Prevention Committee in 1994–96, she made statewide presentations on fire prevention. She also edited powerline, railroad, and industrial guides for fire safety, including the NWCG's National Industrial Guide. A veteran of the 1998 cooperative wildland fire prevention/education team in Texas, she is part of the training cadre for the national prevention teams.

Don and Mary Ohrt of Oroville, CA, have spent more than 18 years in the Volunteers in Prevention (VIP) program with the CDF. As local VIP coordinator, Don Ohrt ensured that his VIP performed more than half of the Public Resources Code fire safety inspections done each year in the CDF district. Both Don and Mary Ohrt volunteer for an average of 70 county fire prevention programs per year, including events on Public Safety Day and Smokey's birthday, at local schools and county fairs, and at a local summer camp for campers of all ages. They do so many Smokey programs that they have been assigned their own Smokey Bear costume.

Gerald Parsons, a forest ranger for the Maine Forest Service in Augusta, ME, has contributed to wildland fire prevention for more than 25 years. Actively involved in the Juvenile Fire Setter Program, Parsons has addressed more than 25,000 students in central Maine schools over the years. In 1996, he cofounded the Honorary Forest Ranger Program to offer seriously ill children a chance to help promote wildland fire safety and to belong to an organization for life. Parsons has also appeared on television in public service announcements on wildland fire prevention.

Ed Smith, the extension service field manager for the University of Nevada at Reno, invented an imaginative way to educate the public about the threat of wildland fire in western Nevada. In 1997, he developed an eight-page tabloid called *Living With Fire* as an insert for local newspapers. The weekly tabloid focuses on the steps residents can take to protect their homes and reduce the number of wildland fires. In 1998, the Great Basin Fire Prevention Education committee adopted Smith's tabloid for distribution in several States, and there are plans for even broader circulation in the West. Material from *Living With Fire* is available for anyone's use nationwide on the World Wide Web at <http://www.extension.unr.edu/FIRE/Living.html>.

Matt Weinell, a cooperative fire prevention administrator for the Florida Division of Forestry in Tallahassee, FL, has provided many

* For more on the cooperative wildland fire prevention/education teams, see Judith K. Kissinger, "Interagency Teams Prevent Fires From Alaska to Florida," *Fire Management Notes,* volume 59(4), pages 13–17.

years of distinguished service in wildland fire prevention in Florida. Since 1995, he has coordinated Florida's popular Prevention Clown Program, which uses the antics of clowns to impress upon children the need for wildland fire prevention. He also conducts annual statewide fire prevention workshops. During Florida's severe 1999 fire season, he arranged for placing 100 fire prevention billboards as public service announcements. His efforts to reduce arson and his aggressive deployment of fire prevention strike teams helped reduce the acreage and homes burned during the 1999 fire season.

Teresa Winovitch, a fire prevention technician for the Forest Service in Mather, CA, has promoted innovative, outstanding fire prevention programs throughout California. In 1997–98, she coordinated the "Keep It Country, Keep It Green" fire prevention events with country singer Michael Martin Murphy. In 1998, she was Forest Service coordinator for the California State Fair, reaching thousands of people with fire prevention messages in a medal-winning exhibit. In 1999, she designed and coordinated "Camp Smokey," an interagency State fair exhibit that engaged children in learning about fire safety through fun-filled stations with names such as "Smokey's Fire Station" and "Fire Safe House." Winovitch has also served as a fire prevention trainer and member of a cooperative wildland fire prevention/education team in Minnesota.

Nominations

The Smokey Bear Awards nomination process is under revision. In the future, nominations will be received year-round, with an announced closing date for submission. The new system will be implemented for the 2001 awards.

New nomination materials will be available after August 28, 2000, at <http://www.symbols.gov/smokey/pages/policy/smokeybear-awards>. Nomination packets for 2000 will be due October 13, 2000.

Anyone wishing to submit a nomination should complete an electronic nomination form and mail in supporting materials such as news clippings and photographs. Each nominee must meet three minimum eligibility criteria:

- At least 2 years of activities must be complete and not in the planning or development stage.
- Activities must demonstrate success in the geographical area for which nominated (nationwide for the Golden Smokey, regionwide for the Silver Smokey, and statewide for the Bronze Smokey).
- Service must be beyond the normal scope of the nominee's job and have significant program impact.

Additional award criteria are being developed (see sidebar). These award criteria will help determine the scope, impact, partnerships, and qualities of the nomination package and will be used to evaluate each nomination. For more information, contact Dianne Daley Laursen, National Symbols Program Operations Manager, Forest Service, c/o Minnesota DNR Department of Forestry, 500 Lafayette Road, St. Paul, MN 55155-4044, tel. 651-296-6006. ■

What Factors Help Determine Smokey Award Decisions?

Representatives from the National Association of State Foresters, the USDA Forest Service, and The Advertising Council jointly select Smokey Award winners from a pool of candidates who meet the minimum selection criteria (at least 2 years of completed, successful activities with significant program impact). What follows is a partial list of questions considered by evaluators in selecting award winners from the pool of eligible candidates.

- Does the project/service tier to national target audiences/themes/messages and goals?
- Did the project receive community or agency recognition?
- Was there media coverage/involvement with the project?
- Was there more than one contact with the targeted audience?
- Did the project incorporate multicultural concerns?
- Were the results of the project/service measured?
- Was the project a catalyst for change?
- Was the project cost commensurate with the benefits received?
- Did the project promote interagency and community cooperation?
- Was the project a catalyst for other activity?
- Does the nominee exhibit leadership?
- Is the project a model of success that can be replicated elsewhere?
- Is the nominee an inspiration to others?

First Annual Photo Contest

Hutch Brown

The results are in from the first photo contest ever held by *Fire Management Today*. As you can see from the photos reprinted here, we had several fine submissions, including the cover photo for this issue.

Why hold a photo contest? Each year, the wildland fire community captures a wealth of experiences on camera, ranging from prescribed burning techniques to fireline action. We wanted to share some of that wealth with our readers.

In wildland fire management, photographs and other illustrations are often the best way to communicate insights, experiences, and techniques—the purpose of *Fire Management Today*. But not every manuscript we accept for publication is fully illustrated. So we decided to encourage folks, through a photo contest, to submit compelling photos that we could use to help illustrate articles in the journal.

We solicited photos in six categories:

- Wildland fire,
- Prescribed fire,
- Wildland–urban interface fire,
- Aerial resources,
- Ground resources, and
- Miscellaneous (fire effects, fire weather, fire-dependent communities or species, etc.).

Hutch Brown is the managing editor of Fire Management Today, *USDA Forest Service, Washington Office, Washington, DC.*

Photographs and other illustrations are often the best way to communicate insights, experiences, and techniques in wildland fire management.

First-place contestants in each category received camera equipment worth $300. In addition, contestants who placed first, second, or third in each category received a framed copy of their photo. Every contestant received a CD–ROM disk with all photos evaluated in the contest.

For our first photo contest, we obtained relatively few submissions, but many were definitely what we were looking for. Our success encouraged us to make the photo contest an annual event.

Do you have a photo that tells a story about wildland fire management? Would you like the thrill of seeing your photo in print? If so, turn to page XX for instructions on how to enter our 2001 photo contest. ■

First Place, Miscellaneous. *Lupines carpeting the floor of an open old-growth ponderosa pine forest maintained by frequent lightning fires on the Powell Plateau, North Rim, Grand Canyon National Park, AZ. Photo: Allen Farnsworth, USDA Forest Service, Coconino National Forest, Peaks Ranger District, Flagstaff, AZ, 1998.*

How Did We Do the Judging?

We evaluated photos submitted in three steps. First, we looked for technical flaws, such as soft focus. For print publication, photos must have the highest technical quality. We automatically eliminated submissions with technical flaws (even though many were otherwise outstanding).

Next, we judged the remaining photos based on traditional photography criteria. We asked such questions as:

- Is the composition skillful and dynamic?
- Are colors and patterns effective?
- Does the photo tell a story?

Finally, we made the awards, based partly on absolute merit. For example, if we decided that there was only one excellent photo in a category, then we made only one award in that category—First, Second, or Third Place, depending on how outstanding we thought the photo was.

First Place, Prescribed Fire. *Single strip of prescribed fire under ponderosa pines on the Fort Valley Experimental Forest, Coconino National Forest, AZ. Photo: Allen Farnsworth, USDA Forest Service, Coconino National Forest, Peaks Ranger District, Flagstaff, AZ, 1996.*

First Place, Aerial Resources. *A P3–A airtanker delivering retardant on the 1999 Yellow Pine Complex, Modoc National Forest, CA. Redding Hotshots (foreground) are preparing to help burn out a large section of fireline after the retardant drop. Photo: James Gould, USDA Forest Service, Klamath National Forest, Happy Camp Ranger District, Happy Camp, CA, 1999.*

Second Place, Miscellaneous. *Bracken fern, one of many carpeting the forest floor 2 years after a prescribed fire on the Coconino National Forest, AZ. Photo: Allen Farnsworth, USDA Forest Service, Coconino National Forest, Peaks Ranger District, Flagstaff, AZ, 1998.*

We are looking for well-composed photos
that tell compelling stories about wildland fire management.

Honorable Mention, Prescribed Fire. *The Flagstaff Hotshots use prescribed fire to restore a travel corridor for pronghorns. Photo: Allen Farnsworth, USDA Forest Service, Coconino National Forest, Peaks Ranger District, Flagstaff, AZ, 1999.*

Honorable Mention, Wildland Fire. *Fayette Lake Fire burning in lodgepole pine at about 9,000 feet (2,700 m) near the Continental Divide on the Jim Bridger Wilderness, Bridger–Teton National Forest, WY. The fire coincided with the 1988 Yellowstone Fires. Photo: Richard Claypole, USDA Forest Service, Klamath National Forest, Happy Camp Ranger District, Happy Camp, CA, 1988.*

First Place, Ground Resources. *Firefighter burning out a section of fireline on the 1988 Fayette Lake Fire, Jim Bridger Wilderness, Bridger–Teton National Forest, WY. Photo: Richard Claypole, USDA Forest Service, Klamath National Forest, Happy Camp Ranger District, Happy Camp, CA, 1988.*

Third Place, Miscellaneous. *Historic fire lookout tree on Lindberg Hill, North Rim, Grand Canyon National Park, AZ. Photo: Allen Farnsworth, USDA Forest Service, Coconino National Forest, Peaks Ranger District, Flagstaff, AZ, 1999.*

Honorable Mention, Prescribed Fire. *Strip firing under ponderosa pines on the Fort Valley Experimental Forest, Coconino National Forest, AZ. Photo: Allen Farnsworth, USDA Forest Service, Coconino National Forest, Peaks Ranger District, Flagstaff, AZ, 1996.*

Contributors Wanted

We need your fire-related articles and photographs for *Fire Management Today*! Feature articles should be up to about 2,000 words in length. We also need short items of a few hundred words. Subjects of articles published in *Fire Management Today* include:

- Aviation
- Communication
- Cooperation
- Ecosystem management
- Education
- Equipment and technology
- Fire behavior
- Fire ecology
- Fire effects
- Fire history
- Fire use (including prescribed fire)
- Fuels management
- Firefighting experiences
- Incident management
- Information management (including systems)
- Personnel
- Planning (including budgeting)
- Preparedness
- Prevention
- Safety
- Suppression
- Training
- Weather
- Wildland–urban interface

To help prepare your submission, see "Guidelines for Contributors" in this issue.

Photo Contest for 2001

Fire Management Today invites you to submit your best fire-related photos to be judged in our annual competition. Winners in each category will receive awards (first place—camera equipment worth $300 and a 16- by 20-inch framed copy of your photo; second place—an 11- by 14-inch framed copy of your photo; third place—an 8- by 10-inch framed copy of your photo). Winning photos will appear in a future issue of *Fire Management Today*. All contestants will receive a CD–ROM with all of the photos not eliminated from competition.

Categories

- Wildland fire
- Prescribed fire
- Wildland–urban interface fire
- Aerial resources
- Ground resources
- Miscellaneous (fire effects; fire weather; fire-dependent communities or species; etc.)

Rules

- The contest is open to everyone. You may submit an unlimited number of entries from any place or time; but for each photo, you must indicate only one competition category.
- Each photo must be an ***original color slide***. We are not responsible for photos lost or damaged, and photos submitted will not be returned (so make a duplicate before submission).
- You must own the rights to the photo, and the photo must not have been published prior to submission.
- For every photo you submit, you must give a detailed caption (including, for example, name, location, and date of the fire; names of any people and/or their job descriptions; and descriptions of any vegetation and/or wildlife).
- You must complete and sign a statement granting rights to use your photo(s) to the USDA Forest Service (see sample statement below). Include your full name, agency or institutional affiliation (if any), address, and telephone number.
- Photos are judged by a photography professional whose decision is final.
- Photos will be eliminated from competition if they lack detailed captions; have date stamps; show unsafe firefighting practices (unless that is their express purpose); or are of low technical quality (for example, have soft focus or show camera movement). (Duplicates—including most overlays and other composites—have soft focus and will be eliminated.)

Postmark Deadline

March 2, 2001

Send submissions to:

USDA Forest Service
Fire Management Today Photo Contest
Attn: Hutch Brown, 2CEN Yates
P.O. Box 96090
Washington, DC 20090-6090

Sample Photo Release Statement

(You may copy and use this statement. It ***must be signed.***)

Enclosed is/are _____ (*number*) slide(s) for publication by the USDA Forest Service. For each slide submitted, the contest category is indicated and a detailed caption is enclosed. I have the authority to give permission to the Forest Service to publish the enclosed photograph(s) and am aware that, if used, it or they will be in the public domain and appear on the World Wide Web.

Signature _____ Date _____

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