Managing Nature's Fury

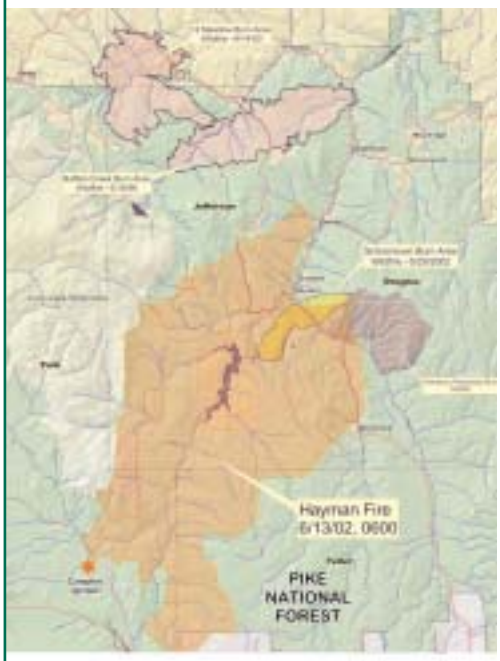
How federal, state and local organizations have come together to achieve a singular goal: restoring the delicate balance of a violent natural cycle by taming the wrath of wildfires.

In the late afternoon sun of June 8th, a smoldering area of dry ground erupts into flames eight miles northwest of Lake George in central Colorado. Fueled by dry brush and grass, the fire spreads quickly. Low relative humidity, gusty and erratic winds, high temperatures and dry conditions help the fire move at high speed across a huge section of Colorado. At the time this publication went to press, the "Hayman" fire had engulfed an area of 137,000 acres.

As a result of a massive multi-state fire fighting effort, the Hayman fire was 69 percent contained as of June 24th. Over two thousand firefighters have been called in, with four deaths and seven injuries reported. With eighteen other major wildfires currently burning in the United States, the demand for resources is enormous. Fires burning in Colorado, California, Arizona and other states have called for massive evacuations and extraordinary firefighting measures. Eastern Arizona has now become the number one priority for the U.S. Forest Service. On June 23rd two forest fires merged creating the Rodeo-Chediski Complex fire spanning an unprecedented 300,000 acres. 25,000 residents have been evacuated and 200 homes destroyed. Firefighting efforts have saved over 2,000 residences in the area. Working to control the blaze and create a line around the perimeter, firefighters are anticipating monsoon season due to arrive in mid-July. It is expected that the fire will burn until the monsoons ultimately douse the flames.

Each year, thousands of wildfires destroy valuable property and priceless natural resources. This year is no exception. With this kind of demand for resources, partnerships between Federal, state, local, tribal, and volunteer organizations are critical to successful fire management in all localities. Wildfires observe no boundaries, and firefighting resources are required somewhere in America every month of the year. Firefighting efforts across the United States and abroad are the result of a major cooperative endeavor among fire management organizations.

Established in 1965 in Boise, Idaho, the National Interagency Fire Center (NIFC) was formed by the U.S. Bureau of Land Management and the U.S. Forest Service to improve fire management support. With the General Services Administration and Office of Aircraft Services providing needed supplies, aircraft, personnel and equipment, the foundation was laid for what would eventually become a full scale interagency cooperative effort to share information and resources. The Weather Bureau, the National Park Service, the Bureau of Indian Affairs, and the U.S. Fish and Wildlife Service all followed, forming the NIFC as it exists today. State, local, and rural agencies also participate, completing the circle. Nations abroad receive fire assistance when directed by the State Department.



Shaded brown area represents the size and location of the Hayman Fire in Colorado.

Ecology

In an expanse of the Midwestern prairie, a bolt of lighting strikes the ground, igniting dry brush and grass, setting small trees aflame and releasing thick smoke into the air. A wildfire is rapidly spreading across the area. Wildfires are a natural and necessary part of the ecological cycle. Without them the ecology of forests and other wilderness areas is out of balance, leaving them vulnerable to disease and insect infestations. Wildland fires help to reduce buildup of natural fuel while releasing vital nutrients for plant growth and reproduction.

As these areas have become populated and greater demands have been put upon the land, fire has been excluded as a natural process. This has put the land and the population at

Each year wildfires destroy millions of dollars of property and priceless natural resources in the United States.

risk. Without naturally occurring fires to burn off excess wildland fuel such as dense trees and brush, and with the introduction of non-native species that are prone to fire or have not adapted to it, many areas have become vulnerable to uncontrolled burning. As a result, fires in the 21st century spread over vast areas at an accelerated rate, produce intense heat and can cause total devastation of human communities and ecological systems.

One way of managing fire prone areas is to use prescribed fires, or fires that are intentionally set. This technique can be used to restore the natural balance of an area that has accumulated a hazardous amount of wildland fuel. Prescribed fires are also used to reduce the risk of an uncontrolled blaze in a populated area that could result catastrophic damage or loss of life. Smoke from wildland fires is a source of dust and soot pollution which can cause serious health problems and interfere with air quality. This must be taken into account when using prescribed fires and when managing wildfires. The management of wildland fires and the implementation of fire policy must balance the damage fire can cause with the benefits it creates, in ecologic, economic, and human terms.

Quick Facts: Hayman Fire in the Pike-San Isabel National Forest

Origin: A reportedly illegal fire set eight miles Northwest of Lake George, Colorado.

Size: Has grown to 137,000 Acres.

Containment: Fire is currently 69 percent contained.

Human Resources: 2,264 firefighters on scene, 60 handcrews.

Injuries: 4 firefighters killed in an auto accident on the way to the fire. 7 injured.

Structures Lost: 115 known residences, 1 commercial property and 444 outbuildings. (Assessment within the perimeter is continuing.)

Equipment: 20 helicopters, 122 engines, 4 dozers currently at the scene.

Cost: $23,665,000 to date.

Source: USDA Forest Service. All facts are as of June 24th, 2002.

Fire Response

Agency response to fires is swift and well organized. Firefighting personnel and resources are immediately provided locally. If the incident demands resources that exceed the local agency's capacity, a request is forwarded to the nearest Geographical Area Coordination Center (GACC).

GACC's locate and dispatch additional firefighters and support personnel throughout the area. If the need is greater than the GACC can accommodate, the National Interagency Coordination Center (NICC) at the NIFC Boise is contacted. The NICC coordinates information and provides additional support including fire personnel, aircraft, supplies, and services to all wildland agencies.

The Multi-Agency Coordination (MAC) group is called to action in critical situations. Directors from each of the NIFC agencies plus representatives from the General Services Administration, the United States military, and the State Forestry all come together to help prioritize and distribute resources.

Firefighting efforts are highly efficient, organized operations that use a number of different crews each with a specific purpose. In such a chaotic environment, fire response must be as organized and as predictable as possible.

Helicopters drop water, foam, or retardant in support of ground crews, provide crucial medical airlift support, and are used to ignite prescribed fires.

In The Thick of It

In response to an emergency call, the sound of helicopter blades chops through the air as the agile aircraft takes off to deliver its cargo. A few minutes later with similar agility, the ***helitack crew*** rappels to the ground to deliver vital firefighting equipment and supplies. Rappeling is a necessary skill for a crew that must reach the ground when the aircraft cannot land safely.

Above the flames and billowing smoke, 370 square feet of nylon material bursts open and catches the wind. Gracefully falling to earth, ***smokejumpers*** dot the horizon as they parachute in to fight the fire at its most inaccessible spots. Shortly after landing, their equipment arrives in the same manner, sent from planes high above via parachute. Enduring conditions that test their physical and mental limits, these highly skilled firefighters attack the fire in the most remote areas.

On the ground, heavy duty all-terrain vehicles traverse the rugged country each carrying three to five crew members. Armed with 800 gallons of water, retardant, or foam, ***engine crews*** douse burning wilderness and structures engulfed in flames.

Above the scene, helicopters drop water, foam, or retardant to cool hot spots and stop the fire from spreading. Lead planes navigate the area above the fire, check conditions, and then guide airtankers safely to their prescribed targets. These large aircraft execute drops of water, fire retardant, or foam on a large scale. A two to three thousand gallon load infused with bright pink dye is dropped as a linear boundary to slow the fire and to aid crews in controlling the perimeter.

Meanwhile, ***ground crews*** scrape away brush, grass, and soil to make ***a fireline or handline***. This barrier, dug down to mineral soil with no combustible components, keeps the fire from spreading. ***Burn out fires*** are set to consume fuel between the edge of the fire and the control line or to widen the control line.

By now, ***Hot Shot crews*** are in position. Trekking through the wilderness on foot, they battle the fire at its heart. At the scene, the crew uses specialized tools including explosives and chainsaws to manage the fire, and must endure the most extreme temperatures produced by the blaze. Firefighter safety is the number one concern during an incident. Helicopters stand ready to airlift injured firefighters for immediate medical attention.

Wilderness rangers, recreation personnel, and other professionals are called in from their day jobs to provide logistical and operational assistance. These ***Hand Crew*** personnel are trained in all aspects of firefighting and assemble at the scene to provide support where needed.

Infrared scanners can detect even the smallest of hot spots from as high as 8000 feet...

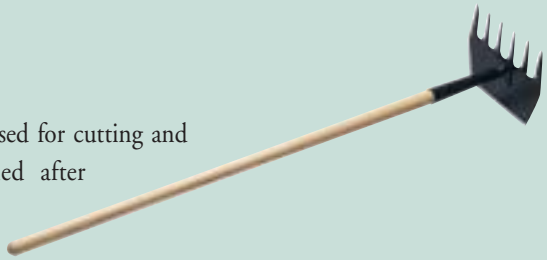
Tools of the Trade

The NIFC stocks fire equipment, radios, tools, and supplies to outfit 10,000 firefighters. After an incident, most equipment is returned, serviced and re-stocked for future use. Efficient and portable, multi-function tools make up much of the wildland firefighters arsenal. Developed over the years by fire professionals, these tools are versatile and easy to maintain.

Pulaski

Combines the functions of an ax and mattock to cut trees and limbs with the ax side and to dig and scrape with the mattock side for firelines. Invented by Ed Pulaski in 1910.

McLeod



A combination rake and hoe used for cutting and clearing surface brush. Named after its inventor.

Ax

Usually double-bitted, axes are used for cutting trees and limbs. Single-bitted or poleaxes are more common in the eastern United States and are used for cutting trees and limbs and for driving wedges.

Shovel

Specifically designed for fire use, edges are sharpened for chopping down small trees and cutting limbs and roots. Sharp edges scrape away pine needles and other material as firelines are constructed. A very light and versatile shovel.

Drip Torch

A device for igniting backfires or burnouts.

Backpack Pump

Carried during mop-up operations for cooling down hot spots.

Armed with 800 gallons of water...the engine crew douses the burning wilderness...

In the afterglow of sunset, infrared aircraft crews take to the air above the scene to begin their nocturnal scans. After the sun dips below the horizon, distinguishing earth from fire by way of temperature becomes easier as the earth begins to cool. Infrared scanners can detect even the smallest of hot spots from as high as 8000 feet, and can traverse one million acres in an hour.

Modular Airborne Firefighting System (MAFFS) are used in C-130 aircraft and are deployed when all aerial resources are otherwise committed. These pressurized tank systems have a three thousand gallon capacity, and are used as a last resort in desperate situations.

Once the fire has been controlled, ground crews ***mop-up*** the scene by seizing burning material and removing it. Logs are secured so they do not move or roll. The area is secured and smoke is reduced as a result of those mopping-up activities.

The Aftermath

As the smoke clears, the focus changes to rehabilitation and healing. Teams of scientists spanning many fields descend on the scarred landscape. The first priority is to asses the damage and prevent subsequent disasters. A slope stripped of vegetation by fire easily loses the capacity to absorb water. Rainstorms threaten to produce dangerous and devastating mudslides that can surge down mountain slopes at high speeds jeopardizing populated areas and the ecological balance.

Community members and fire professionals both participate in healing the land. Planting trees and seeding the area discourages both water erosion and the establishment of invasive, highly flammable weeds like cheatgrass. Once cheatgrass is established in an area, a vicious cycle begins. As the weeds flourish, the more prone the area is to fire. The more fires occur in the area, the more the weeds flourish.

Complete rehabilitation of the land requires both the efforts of fire management professionals, and the community. To some extent, the land has the capacity to heal itself, but with the support of fire management organizations and community members, the land's natural legacy is protected. Through the combined efforts of all the NIFC organizations and dedicated fire professionals across the country, managing this process is becoming more efficient and more effective as new strategies and technologies are developed to protect and maintain one of our greatest natural resources – the land on which we live.

Dedicated in May of 2000 and built as a testament to wildland firefighters everywhere, this expansive monument is located in an area behind the National Interagency Fire Center headquarters in Boise, Idaho.

Life-size bronze statues of firefighters building a handline serves as the main focal point. The statues are set in the midst of native vegetation meant to exhibit the kind of natural fuel that is present in the wildland fire environment. In another area of the monument, a waterfall flows over native rock to represent the key role water plays in firefighting efforts.

This serene place is a living testament to the thousands of wildland firefighters who put themselves at risk on a regular basis to protect the beauty and integrity of our natural landscape.

Land Management Agencies

Each land management agency provides its own fire coordination and support for the lands under its jurisdiction. With this responsibility comes the need to coordinate with other organizations to provide the most effective fire management support across the United States.

Bureau of Land Management (BLM)

The Bureau of Land Management's National Office of Fire and Aviation has a staff of fire experts that develop policy, conduct wildland fire research, and coordinate with fire managers from other firefighting organizations.

BLM works closely with the Office of Aircraft Services to obtain the right mix of aircraft and in-house technical expertise so that the agency's missions can be successfully completed in the most efficient, safe, and cost-effective manner.

USDA Forest Service

Fire and Aviation Management works to implement technological advances in fire suppression and management. Mobilization and tracking systems are maintained and improved to achieve maximum efficiency. Providing support to federal, state, local, and tribal fire management organizations plays a major role in protecting America's public lands.

National Park Service

80 Million acres of National Parks, Monuments, Historical Sites, natural areas, and other federal lands are administered by the Fire Management Program Center of the National Park Service. Goals include the implementation of national mandates for the safety of employees and the public, protection of natural and cultural resources, and to work in cooperation with other federal, state, local, and tribal organizations.

US Fish and Wildlife Service

Working to protect National wildlife refuges, the fire management branch of this service implements program objectives including preparedness, prescribed fire use, suppression, and emergency rehabilitation. The branch also oversees policy, procedures, and standards.

Bureau of Indian Affairs

Manages 60 Million acres of Indian reservations and other trust lands. Safety is the number one priority for BIA's Branch of Wildland Fire Management. Protection, fuel management and emergency rehabilitation of Indian forest and range lands is implemented under Indian Self-Determination as requested by tribal government.

Supporting Agencies

National Weather Service

The National Weather Service (NWS) provides up-to-date weather information on a short-term basis, usually three to five days in advance, to assist local weather agencies in determining possible fire hazard conditions as well as where potential hotspots may occur. The Remote Automatic Weather Station (RAWS) gathers, processes, and stores local weather data for transmission via satellite for use in the National Fire Danger Rating System. Based on this data, local NWS offices issue fire watches and warnings to fire professionals.

A watch is issued when conditions could hit a critical level for wildland fire in 48-72 hours. A Red Flag Warning is issued to alert fire professionals that conditions are imminent for wildland fires. This information helps local agencies properly allocate resources for wildfire management.

Office of Aircraft Services

OAS provides aircraft, and technical and administrative aviation services to governmental organizations. OAS is part of the Office of the Secretary of the Interior.

General Services Administration

GSA makes firefighting supplies available to all NIFC participating organizations involved in wildland firefighting.

Over 200 items are classified as GSA fire items including water handling supplies, fire shelters, canteens, fire line hand tools, field packs, sleeping bags, hoses, protective clothing, safety helmets and much more. GSA publishes a Wildland Fire Protection Catalog annually.