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FAST FACTS

The health of Front Range forests directly impacts a number of public values and environmental services, including:

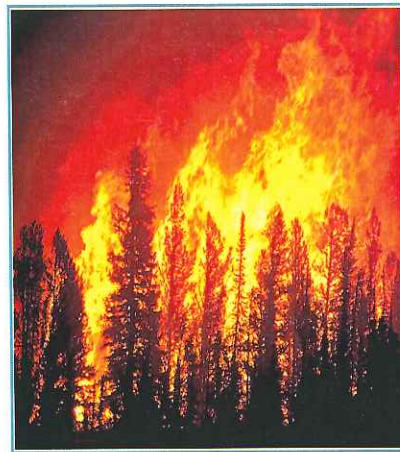
- More than 2 million people, 881 communities, and more than 700,000 homes.
- 4.2 million acres of watershed that is essential to drinking water supply, 65% of which is at high risk to post-fire erosion.
- 1,246 essential components of water supply storage and delivery.
- 1,775 miles of roads.
- 1,573 miles of transmission lines.
- 664 miles of gas pipelines.
- 122 communication towers.
- 2 million acres of essential habitat for imperiled wildlife and plant species.

SUSTAINING FORESTS AND COMMUNITIES ON THE FRONT RANGE

August 2011

Over the past ten years, Colorado's record-setting wildfires brought a barrage of flames, smoke and ash—and a hefty price tag to the forests and communities of the Front Range.

The 137,760 acre Hayman Fire epitomized these dramatic wildfire events as it drove thousands of Colorado families from their homes and ultimately destroyed 600 homes and other structures. As it progressed across the landscape, the Hayman Fire cost more than \$80 million in taxpayer money for suppression and post-fire rehabilitation. The current total cost estimate for burned area rehabilitation is \$230 million. In 2010, the Fourmile Canyon Fire—the most expensive fire in Colorado history—consumed over 6,000 acres and 169 homes in Boulder County. The cost of the blaze was more than \$217 million in lost homes and another \$10 million in sup-



Haymen Fire at Night-USFS

pression. Costs continue to mount as rehabilitation, stabilization, reconstruction and flood mitigation are just getting underway. These noteworthy Front Range fires are among many over the past ten years that have compromised drinking water supplies, threatened critical habitat, and negatively

impacted homeowners, community and local businesses, and the economy. Unfortunately, the conditions that drove the Hayman Fire continue to exist in many forests throughout the ten county Front Range area, a region that faces further challenges as the mountain pine beetle begins to cross over the Continental Divide. More than 2 million people live, work and play in these landscapes where underlying forest conditions pose an imminent threat to lives and property. We also depend on these forests for clean water and reliable power, treasured recreation and scenic areas, economic sustainability and Colorado's unique natural heritage.

FORESTS OF THE FRONT RANGE

Colorado's Front Range forests are home to many plant and animal species that rely on periodic fire to maintain their health and overall well-being. At lower to middle elevations, these landscapes are dominated by ponderosa pine forests that evolved with frequent, low-intensity fire. These natural

fire cycles served to reduce competition and promote a mosaic of large, old, fire-resistant trees spaced fairly far apart and intermixed with open meadows. Without these natural cycles of fire, many ponderosa pine forests have become very dense and clogged with

undergrowth that serves as a "ladder fuel" to help wildfire climb into the trees' crowns rather than staying on the ground. As a result, these forests are stressed by intense competition for resources and are at extremely high risk of catastrophic wildfire and severe insect and dis-

SUSTAINING FORESTS AND COMMUNITIES ON THE FRONT RANGE

Forests ...

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ease outbreaks. At higher elevations, Front Range landscapes are characterized by mixed-conifer and lodgepole pine forests. Lodgepole pines grow in naturally dense stands that burn very infrequently. When fire does occur, it is usually at a high intensity that serves to remove large patches of the existing forest and make way for regeneration of a new stand of sun-loving lodgepole seedlings. The age of many Front Range lodgepole pine forests suggests they are ready for this kind of “stand-replacing” event, either through fire or large-scale insect and disease activity. Some are concerned that this event may be unnaturally severe due to the added stress of several years of drought, changing climate and fire exclusion.

CRITICAL CHALLENGES



...more than 2 million people and nearly 900 communities at risk from wildfire located in the ten counties along Colorado’s Front Range.

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When forests are in poor condition, it affects much more than just the people, plants and animals that live in those landscapes. The health of our Front Range forests is important to all of us that rely on the many benefits that flow from the mountains to our front door. Some of the critical challenges facing our forests and communities are highlighted below.

Threats to Life and Property

There are more than 2 million people and nearly 900 communities at risk from wildfire located in the ten counties along Colorado’s Front Range. This zone of concern also includes critical roads, energy transmission towers and other components of community infrastructure that are essential to daily lives. Human development within and adjacent to the forest complicates wildfire and forest management and can negatively affect forest health. When damaging wildfires occur in these populated areas, also known as the wildland urban interface, lives and homes are threatened and tremendous public costs are incurred to

put out the fire and address related damage.

Experts project that the Front Range’s wildland urban interface could double over the next 20 years, exposing even more people and public values to damage and loss. There are many steps that can be taken to reduce the risks posed to both individuals and communities by wildfire. These include developing and implementing Community Wildfire Protection Plans, using fire safe building materials, thinning trees and vegetation to create defensible space around structures, and ensuring safe access routes for firefighters.

Watershed Health

Front Range forests furnish drinking water supplies to more than two-thirds of the state’s population. These forested watersheds cover at least 2.9 million acres of forest land, more than 67 percent of which is at high risk to damage from post-fire erosion and sediment deposition. Within these watersheds lie several components of water supply and delivery infrastructure, including 86 source water intakes, nearly 400 municipal supply reservoirs and

18 trans-basin diversions. When a severe wildfire occurs in these watersheds, subsequent flooding, erosion and sediment delivery can severely damage or even destroy this essential infrastructure and result in tremendous repair and rehabilitation costs for water providers. As an example, the watersheds and water supply infrastructure essential to Denver Water experienced tremendous damage as a result of several severe wildfires including the 1996 Buffalo Creek Fire, the 2000 Bobcat and Hi Meadows Fires and the 2002 Hayman Fire. The cost for Denver Water to repair just one major reservoir will exceed \$30 million. Total water storage loss related to the Hayman Fire was estimated at \$37 million. Studies have concluded that climate factors and forest conditions place Front Range source watersheds at high risk from severe wildfires. These critical Front Range watersheds will remain vulnerable to high-severity wildfires unless strategic infrastructure protection and forest restoration treatments are planned and implemented.

At least 40 percent of these landscapes are currently outside their “natural range of variability,” meaning they are susceptible to fires, insects and disease, noxious weeds and other disturbance.

Buffalo Creek Fire—May 18, 1996

Traveled 11 miles in 4 ½ hours; 11, 900 acres burned



Left: Aerial Photograph of the Buffalo Creek Fire Scar



Right: Debris floating in Strontia Springs Reservoir. Rain events shortly after the fire caused severe erosion and debris flows that affected the water supplies of Denver and Aurora.

It will cost Denver and Aurora about \$30 M to remove the silt and debris in Strontia Springs Reservoir from the Buffalo Creek Fire.

The ongoing mountain pine beetle epidemic has dramatically impacted Colorado's High Country and is beginning to cause similar concern in the higher elevation forests of the Front Range.

Insects and Disease

Natural cycles of insect and disease outbreaks are an important component of functioning forest ecosystems, serving to diversify and rejuvenate the forest. Occasionally, forest and climatic conditions will collide in a way that causes these outbreaks to reach epidemic proportions, causing concern over increased wildfire risk, public safety and economic and aesthetic values. The ongoing mountain pine beetle epidemic has dramatically impacted Colorado's High Country and is beginning to cause similar concern in the higher elevation forests of the Front Range. Severe drought during the past decade, warm temperatures in both summer and winter, has resulted in stressed trees and the perfect conditions for this kind of activity. Mountain pine beetles prefer large trees with thick bark, and they could find an abundant food supply in the Front Range's mature lodgepole, ponderosa and limber pine forests. The most effective actions to reduce insect and disease damage involve alleviating stress or competition and restoring a forest's resilience prior to attack. Once an insect and disease outbreak of these proportions is underway, management is most important for addressing public safety risks such as falling trees and wildfire and protecting critical community infrastructure.



Mountain Pine Bark Beetle

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A red tree is a dead tree...

Large-scale Ecological Restoration

Front Range forest ecosystems are essential to the sustainability of Colorado's natural heritage. These landscapes support a diverse array of unique wildlife and plants, including 31 state species of concern and 2 federally listed Threatened and Endangered species. Habitat for these plants and animals covers nearly 2 million acres along the Front Range. At least 40 percent of these landscapes are currently outside their "natural range of variability," meaning they are susceptible to fires, insects and disease, noxious weeds and other disturbance at an unnaturally large and/or damaging scale. A healthy forest ecosystem is sustained by dynamic interactions between plants, animals, soils, climate and many other forces that operate at both large and small scales to ensure the ecosystem is functioning effectively. Human decisions, such as whether or not to suppress fires or where to allow development, can dramatically influence the condition of a forest ecosystem by disrupting the natural cycles that keep it balanced. When land managers design treatments to restore health and resilience to these forests, they must think and implement at a large scale because events such as wildfire and insect epidemics don't recognize political or ownership boundaries. Restoration must occur at a scale large enough to influence the behavior of these forces across the landscape.

Woody Biomass Utilization

...it is essential that individuals and land managers cut costs by finding productive ways to use and generate income from the woody material or biomass produced by these forest treatments.

The Front Range Roundtable has estimated that it would take \$15 million per year over 40 years to implement treatments on the 1.5 million acres of forests and shrublands they identified as in need of management to protect communities and restore ecosystems. Faced with this tremendous barrier, it is essential that individuals and land managers cut costs by finding productive ways to use and generate in-

come from the woody material or *biomass* produced by these forest treatments. As an added benefit, utilization of this material can also support local jobs and economic opportunities and contribute to renewable energy goals. Because Front Range forests are generally made up of relatively small diameter trees that are not valuable for traditional lumber products, local businesses and land managers must identify markets for alternative products such as animal bedding, posts and poles, compost, firewood, or chips and

pellets for bioheating. Other challenges include limited processing capacity, inconsistent supply, the lack of infrastructure required for harvest and treatment and air quality issues associated with current biomass technologies.



PROGRESS THROUGH COLLABORATION

In the wake of the 2002 wildfire season, state and federal land managers joined local communities, scientists and diverse interest groups to seek more timely and meaningful solutions to the Front Range's forest health challenges. As the **Front Range Roundtable**, these diverse partners used sound science and detailed economic analysis to identify the 1.5 million acres of forest land that were most in need of treatment to protect communities and restore critical ecosystems. The Roundtable subsequently released a report highlighting these priority acres and outlining a suite of specific recommendations for action. Some of the Roundtable's initial successes have served to:

- Increase state and federal resources for treatment of Front Range forests;
- Establish new tax incentives for fuel reduction and defensible space on private lands;
- Create a centralized information resource for incentive and cost-share programs available in each county;
- Enable local governments to better support forest management through the establishment of Forest Improvement Districts and community slash and mulch sites;
- Initiate a long-term, landscape-scale stewardship contract in the two Front Range National Forests;
- Promote increased use of safe and effective prescribed fire through a statewide Prescribed Fire Council;
- Assist insurance providers with educating policy holders in the wildland urban interface.

The Roundtable also designed a program and garnered funding to launch the **Woodland Park Healthy Forest Initiative**, which engages land managers, elected officials and diverse stakeholders in facilitating community protection and watershed restoration around the community of Woodland Park.

As conditions on the Front Range continue to evolve, other collaborative groups have joined the Front Range Roundtable in pursuing more effective approaches to forest health. Although they have somewhat unique priorities, these Front Range groups work together on a consistent and collaborative basis to promote implementation of priority forest management at a landscape scale.

The **Watershed Wildfire Protection Working Group** convened in 2007 to facilitate increased protection of watersheds and water supplies threatened by catastrophic wildfire. The membership of this group consists primarily of water providers and representatives of local, state and federal government. The group's current focus is on conducting individual assessments of watersheds to determine which water supplies are most at risk from post-wildfire sediment and debris flows. They then hope to work with local communities to develop and implement Critical Community Watershed Wildfire Protection Plans and to incorporate water supply protection into communities' existing plans. Targeted public outreach and education is also a priority.

The **Northern Front Range Mountain Pine Beetle Working Group** also convened in 2007 with the goal of coordinating local, state and federal response to the mountain pine beetle activity increasing within their borders. The group's activities focus on facilitating information exchange between affected public officials, promoting coordinated public outreach and education, and supporting cross-boundary forest management and funding to address beetle-related concerns as well as other proactive management needed to promote forest health and minimize or prevent future epidemics.

The **Front Range Roundtable** played a supporting role in helping Colorado forests win federal **Collaborative Forest Landscape Restoration Program (CFLRP)** grants in 2010. If fully funded, this 10-year program will bring \$37 million in new funding to Front Range forests and facilitate treatment on at least 32,000 acres.

