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Environmental Effects of Catastrophic Wildfires Congressional Field Hearing Testimony

March 7, 2003

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Ladies and gentlemen of the committee, my name is Lyle Laverty and I currently serve as the Director of Colorado State Parks. It is my distinct honor to come before you and provide some information about the degraded air quality, water quality, and wildlife impacts that catastrophic fires had on the State of Colorado in 2002.

As you well know, the Hayman fire was the largest wildfire in Colorado's recorded history, burning some 138,000 acres in and around the Pike National Forest – less than 20 miles from the Denver Metropolitan Area – at a cost of \$40 million in suppression costs. The Hayman fire, the Missionary Ridge fire, and some 2,000 other wildfires statewide were unprecedented. I would like to share with the committee just a few of the impacts that these fires had on the natural environment in Colorado.

The Hayman fire was started on June 9, 2002. Severe drought and unseasonably dry weather, exacerbated by unnatural fuel accumulations throughout the forest, had left the Pike a virtual tinderbox. In a move not often seen by wildfire ecologists, the Hayman fire crowned and made a 12-mile run in half of a day's time. It destroyed almost everything in its path, including threatened and endangered species habitat and imperiled one of Denver's largest municipal water supplies.

Water Quality

The impact of catastrophic wildfires on forested watersheds is difficult to underestimate. The Denver Metro Area is primarily served by the South Platte River drainage located within the Pike National Forest. The Denver Water Department, which supplies 1.2 million users in the Metro area, owns several storage facilities in the South Platte drainage. One of the most significant storage facilities is the Cheesman reservoir, which is also at the heart of where the Hayman fire burned. In fact, some of the most severely burned stands are directly within the Cheesman drainage. If history is any indicator, this bodes very poorly for Denver's drinking water.

In 1996, the 12,000-acre Buffalo Creek fire – which is located just north of where the Hayman fire burned in the South Platte watershed – burned above a drainage leading to another Denver Water storage facility in the South Platte basin. Heavy rains a month later caused flash flooding across the denuded landscape, washed out a state highway and deposited 600,000 cubic yards (or hundreds of thousands of tons) of sediment into Strontia Springs reservoir – the equivalent of 13 years of sediment load in a few short days. To date, the State Forest Service estimates that more than \$25 million has been spent as a result of the comparably small Buffalo Creek fire.

Colorado's concern, and more acutely, the concern of the Denver Water Department, is what will then happen if a heavy rain falls upon the Hayman burn area – an area roughly 10 times the size of the Buffalo Creek fire and above a reservoir roughly 6 times the size of Strontia Springs. We are looking at a potentially disastrous situation, despite the mammoth \$7 million flooding mitigation effort by the Denver Water Department. Denver Water has constructed very large sediment barriers, but granular granite sediment across such an immense landscape still has the potential to do tremendous damage to the reservoir.

In short, the Hayman fire has already affected the quality of Denver's drinking water. Fortunately, the area has not seen any significant rain as of yet. Unfortunately, our forest professionals tell us that the threat of landslides and massive sedimentation will not subside until vegetation has been reestablished. Because of the heat and intensity of the fire, many of the soils are incapable of supporting vegetation without scarification or other expensive mitigation efforts.

It is estimated that Denver's South Platte water supplies will be cut off for upwards of three days until water quality levels are safe again if heavy rains occur in the Hayman area. Perhaps most disturbing is the fact that this threat of incapacitation may persist for up to three years.

Air Quality

While water quality has been one of the most difficult ongoing challenges that we have had to deal with after the Hayman fire, the air quality impacts during the height of the fire may have actually been worse.

The Metro Area has spent the past thirty years working hard to improve air quality. In fact, we were recently given "clean air" status from the EPA for the first time since the inception of the Clean Air Act. To put that into context, in 1977 only Los Angeles had worse air quality than Denver.

On June 9, 2002, the day the Hayman fire exploded across the Pike National Forest, a strong northeasterly wind carried the enormous plumes of wildfire smoke up the South Platte riverbed and right into the downtown area. As the smoke entered the city, visibility was reduced to less than three miles, and was as little as 1½ miles in some places. The result of this thick smoke was the worst air pollution levels ever recorded in Colorado. The fine particulate matter levels were so high that the air across the Metro Area was deemed unhealthy to breathe, according to EPA standards. Obviously some members of the public are more sensitive to air pollution. There was one fatality recorded as a result of the smoke pollution combined with the individual's reported asthmatic condition. But humans were not the only fatalities recorded as a result of these catastrophic wildfires.

Endangered Species

The Pawnee Montane Skipper butterfly is a federally threatened species, listed under the Endangered Species Act (ESA) in 1987. It is found in only one place in the world and that is the Upper South Platte watershed area. The total amount of suitable habitat burned since 1996 is 12,026 acres, or 48.3 percent of the mapped suitable habitat. Based on the USFS fire severity mapping for the four major fires since 1996, it is estimated that the skipper population has been extirpated from about 30 percent of its former habitat since 1996. The fires of 2002 alone burned 39% of known skipper habitat. The species is now believed to be in a drought-induced dormancy, so official population estimates will not be known for some time, although few skipper have been observed since the fire. Needless to say, the Hayman fire has put tremendous stress on an already sensitive species.

Over 40,000 acres burned within the boundary of designated critical habitat for the Mexican Spotted Owl. There were several other threatened or endangered species that lost habitat – either known or suitable – in the Hayman fire, including the Bald eagle, Preble's Meadow Jumping Mouse, and Canada lynx.

We also lost an undetermined number of big game species, such as elk. Because the fire burned so early in the season, elk calving was a factor and state officials estimate that cows and calves were lost due to the immobility of young at that point in the season. The Hayman fire did not burn the primary range of elk, but wildlife officials are still unsure about the total impact to the herds in that area.

Colorado experienced a wildfire season in 2002 unlike anything we have faced before. The largest two fires in our recorded history – the Hayman and Missionary Ridge fires, respectively – not only burned simultaneously, but represented nearly half of the total acreage burned in the entire state in 2002 – well over half a million acres in all. There are contributors to unnatural wildfires like these that are beyond our control, such as weather and drought. But the unmitigated fuel levels across Colorado's 22 million acres of forested lands is not beyond our control.

The federal government owns two-thirds of Colorado's forested acres. Reducing the fuel levels on those lands is a monumental task with which Congress will have to wrestle. There are enormous roadblocks that the federal land management agencies are facing in their effort to reduce dangerous fuels throughout the West. We know that the actions we are asking the federal agencies to take will come at significant costs – though these costs can and should be reduced through effective tools like stewardship contracting. But we would ask Congress to keep in mind the cataclysmic costs that inaction would have on the landscapes of

our forests.

At the state level, Colorado has taken the initiative to address forest health conditions. The Colorado State Legislature has passed through one house a bill requiring state land management agencies to manage state-owned forested lands to reduce the threat of catastrophic wildfire and to improve wildlife habitat and water quality. We anticipate the Governor will sign the bill in the coming months. The only problem is that this bill only deals with state-owned lands, some 1% of Colorado's forests.

Catastrophic wildfires like that of the Hayman can be avoided through aggressive and coordinated fuels reduction treatments. We know thinning works. Science and research support these findings. Treatments in and around the Hayman fire dramatically altered fire behavior. But to be effective, treatments must occur on a landscape scale. It is for these reasons, among many others, that the State of Colorado whole-heartedly endorses the Bush Administration's Healthy Forests Initiative.

Colorado is currently moving on legislation that will allow us to use thinning to restore healthy ecosystems in state-owned forests. But we must have action from the federal government to provide thinning on a landscape scale. Our best efforts simply cannot effect the volume necessary to avoid Hayman-type catastrophes in the future unless they are mirrored by federal land managers. Nothing short of that will provide the necessary protections for our precious air, water, and wildlife.

Our analysis provides the following findings:

1. The key to reducing the risk of catastrophic fire in Colorado is to return Colorado's forests to a more fire resistant, resilient condition.
2. There are active management techniques that can speed up the process of returning forests to a more natural, fire resistant condition.
3. Obsessive focus on short-term species protection impedes long-term habitat protection.

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