



## Wildfire Suppression Project to Protect Mountain Community

### Full Mitigation Best Practice Story

#### *Pima County, Arizona*

**Pima County, AZ** - Just north of Tucson, Arizona, Mt. Lemmon -- a "sky island" -- rises nine thousand feet above the desert. The landscape morphs from desert to alpine in the twenty mile drive to the top. Saguaro cacti disappear to be replaced with majestic Ponderosa pines, while October temperatures in the upper 80's on the desert streets turn to temperatures in the upper 50's in Summerhaven, a tiny resort town at the summit. With only one paved access road, the island metaphor is natural.



On June 17, 2003, a wildfire ignited just over the ridge from Summerhaven. High winds, gusting between 40 and 60 mph, accounted for the fire's growth of about 450 acres on the morning of day two to about 4,000 acres by nightfall.

On June 19, the Aspen Fire reached Summerhaven. Firefighters battled the fire until July 14-- nearly a month of exhausting, dangerous effort finally to overcome the natural disaster that forever altered the appearance of the mountain community and those who lived there.

In total, approximately 85,000 acres burned in the Aspen Fire. Total damage amounts to public facilities, including electric lines, phone lines, streets and sewers, and water facilities were \$4.1 million. In addition, firefighting costs were about \$17 million and restoration work by the Burned Area Emergency Recovery (BAER) teams cost \$2.7 million.

More than half of the 600 homes in the Summerhaven area were destroyed by the fire. Electrical power to the area was out for six to eight weeks and residents were unable to return to their homes until July 17, a full month after the Aspen Fire evacuation. Those whose homes did not burn still had the monumental task of clean up, including discarding spoiled food from home refrigerators and freezers.

According to scientists at Tucson's University of Arizona campus, "Fire hazards are compounded on Mt. Lemmon due to dry, drought-stressed trees under attack by beetles in a forest with a heavy fuel-load, the legacy of a century of fire suppression." The previous year, the Bullock Fire ravaged Mt. Lemmon. From evidence left in tree rings, scientists at Tucson's University of Arizona campus estimate that the last large fires on the mountain were over 100 years ago.

Within the perimeters of these fires in Summerhaven there is an area of unburned trees and homes which were spared by fire-fighting efforts, deviation of the winds driving the flames, or just by luck. One still-green hillside is the target of a Hazard Mitigation Grant Project.

According to the same scientists, "Fire hazards are compounded on Mt. Lemmon due to dry, drought-stressed trees under attack by beetles in a forest with a heavy fuel-load, the legacy of a century of fire suppression."

Following the fire, many changes have come to Summerhaven, both for public works and for private property. Summerhaven has connected a new six-inch water line, 2,000 feet long, to the 283,000 gallon Loma Linda water tank on the mountainside high above town, allowing fire hydrants on the line at every street intersection to provide protection to homes and trees in an area that was spared from the Aspen and Bullock Fires.

The community has improved building codes so that new homes in Summerhaven are being built with fire safety in mind, with fire-resistant building and landscaping materials and with landscaping techniques called, "defensible space." Defensible space is an area around a structure where fuels and vegetation are treated, cleared or reduced to slow the spread of wildfire towards the structure. It also reduces the chance of a structure fire moving from the building to the surrounding forest. Defensible space provides room for firefighters to do their jobs. A house is more likely to withstand a wildfire if grasses, brush, trees and other common forest fuels are managed to reduce a fire's intensity.

Besides the fire suppression work, the Summerhaven community has also prepared for erosion and flooding which typically occur following wildfires. It is expected that most of the structural erosion control treatments will remain functional until natural recovery occurs. As of March 2004, despite significant rainfall events, Pima County staff observed minimal damage to the remaining structures and only minor erosive damage due to flooding or debris flows on the mountain. However, issues of forest

management, tree debris removal, and re-vegetation will remain for years to come.

As a result of their work on the restoration of the community, the Mount Lemmon Domestic Water Improvement District was selected as a 2006 Common Ground Award finalist by the Metropolitan Pima Alliance, an organization that advocates responsible development in the Tucson area through education, public policy formation and member networking.

### Activity/Project Location

Geographical Area: **Single County in a State**

FEMA Region: **Region IX**

State: **Arizona**

County: **Pima County**

### Key Activity/Project Information

Sector: **Public**

Hazard Type: **Fire**

Activity/Project Type: **Retrofitting, Structural; Utility Protective Measures**

Structure Type: **Wood Frame**

Activity/Project Start Date: **07/2006**

Activity/Project End Date: **Ongoing**

Funding Source: **Hazard Mitigation Grant Program (HMGP); State sources**

Funding Recipient: **Lifelines - Water/Sewer**

Funding Recipient Name: **Mt. Lemmon Domestic Water Improvement District**

Application/Project Number: **9999**

### Activity/Project Economic Analysis

Cost: **\$109,688.00 (Estimated)**

### Activity/Project Disaster Information

Mitigation Resulted From Federal  
Disaster? **Yes**

Federal Disaster #: **1477 , 07/14/2003**

Federal Disaster Year: **2003**

Value Tested By Disaster? **No**

Repetitive Loss Property? **Yes**

## Reference URLs

Reference URL 1: <http://ag.arizona.edu/pubs/natresources/az1290/>

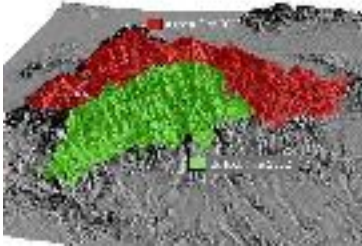
Reference URL 2: <http://ag.arizona.edu/firewise/why4.html>

## Main Points

- More than half of the 600 homes in the Summerhaven area were destroyed by the fire.
- Following the fire, many changes have come to Summerhaven, both for public works and for private property.
- Summerhaven has connected a new six-inch water line, 2,000 feet long, to the 283,000 gallon Loma Linda water tank on the mountainside high above town, allowing fire hydrants on the line at every street intersection to provide protection to homes and trees in an area that was spared from the Aspen and Bullock Fires.
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The remains of Summerhaven



Map showing different fire's burn areas



Firefighters examine an exploded propane tank



The remains of the Mt. Lemmon Domestic Water Improvement District Manager's home following the Aspen Fire



Proposed Water Line