

Appendix C: Hazards and
Mitigation PowerPoint
Summarizing City's
Flood/Fire Mitigation
Actions since 2012

Hazards & Mitigation

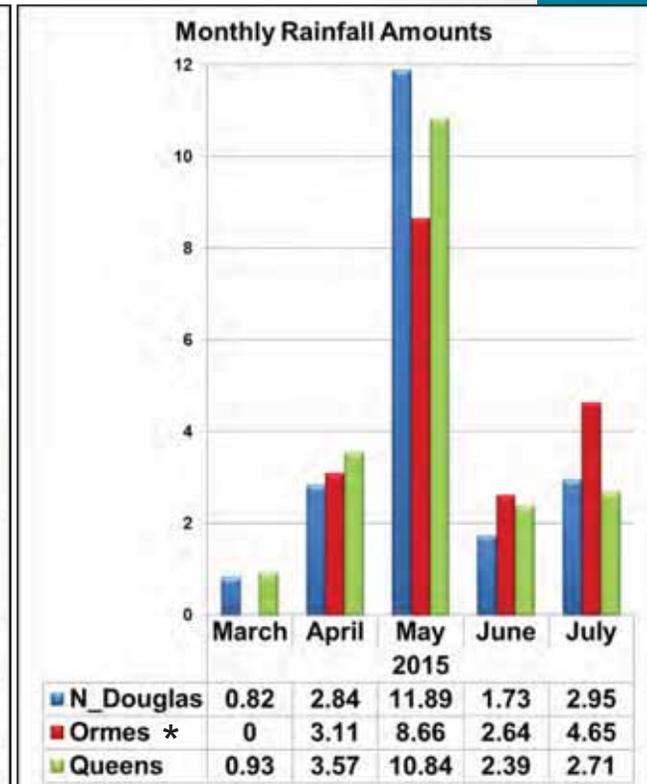
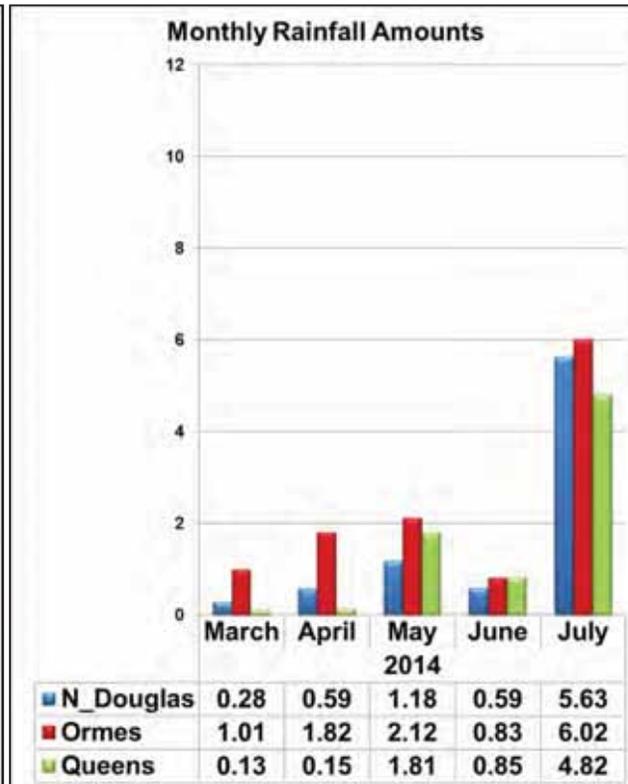
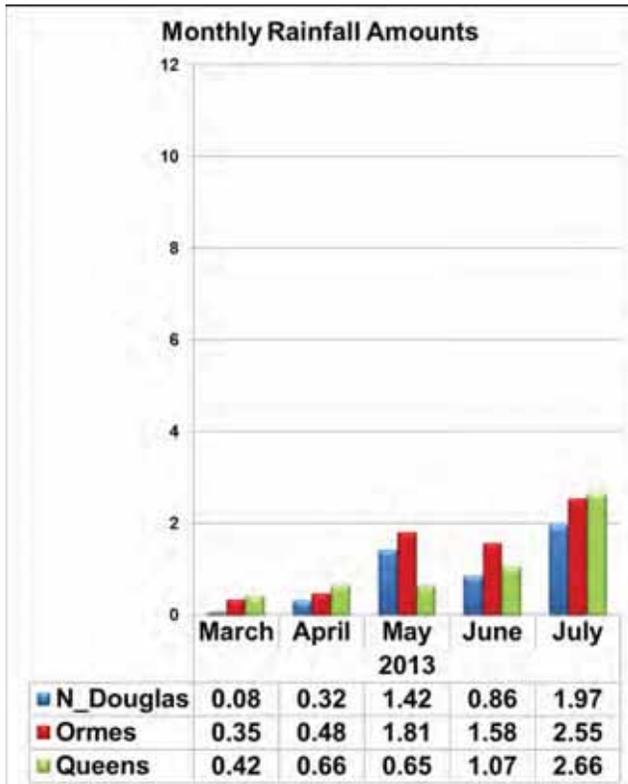
City of Colorado Springs
July 29, 2015



Overview

- Rainfall 2013 – 2015 on the Waldo Canyon Burn Scar
- Waldo Canyon Fire Mitigation and Recovery
- City of Colorado Springs and Colorado Springs Utilities Infrastructure Damage Federal Disaster 4229

Waldo Canyon Burn Scar Rainfall above Colorado Springs 2013 - 2015

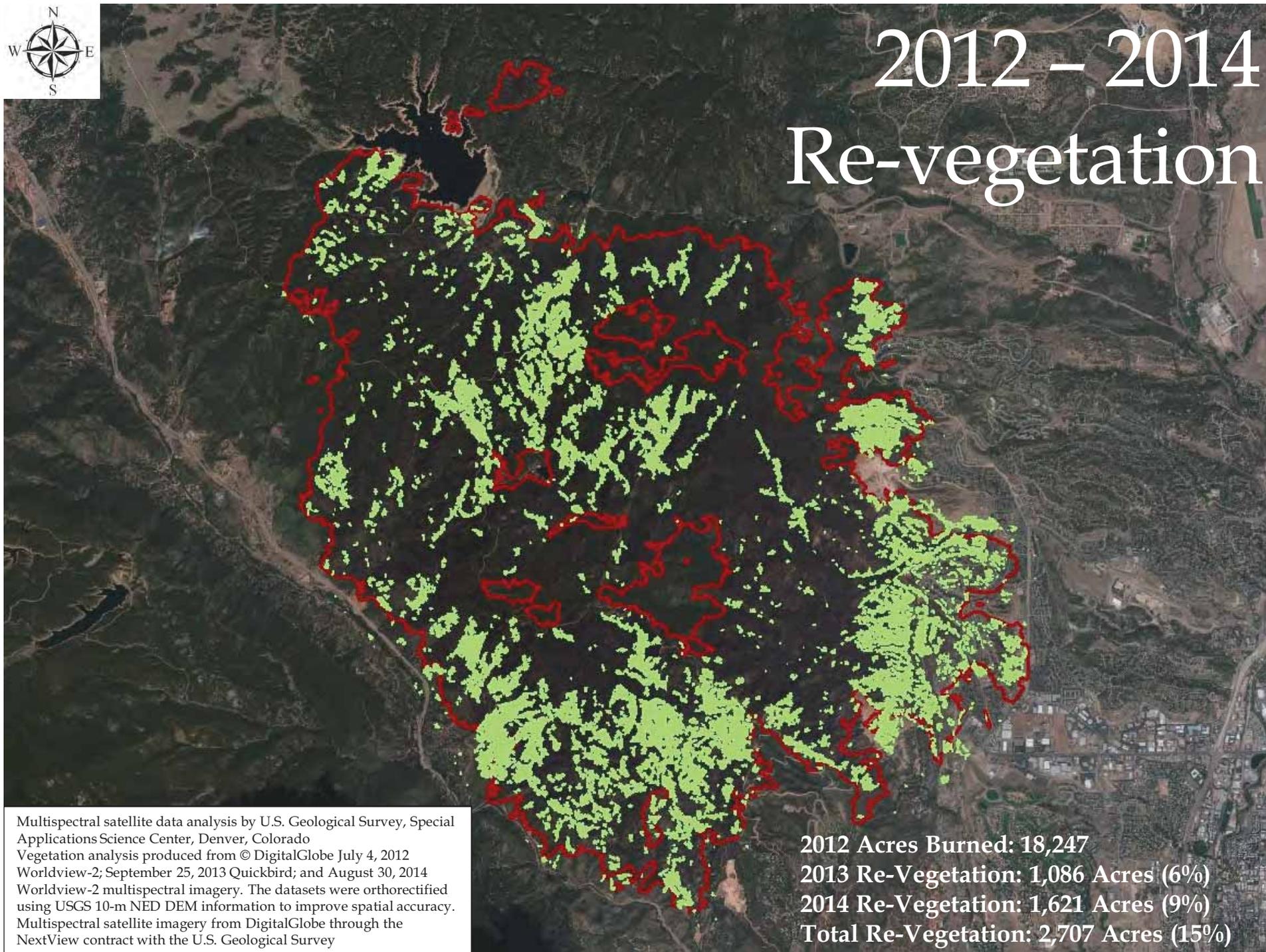


* Ormes Peak Gage Offline
March 1 - April 12

Three USGS rain gages are located on the Waldo Canyon Fire Burn Scar above Colorado Springs on Camp Creek (Ormes and Queens) and North Douglas Creek. When compared to 2013 and 2014, the 2015 monsoon season has begun with a significant increase in precipitation on the burn scar. Rainfall amounts in May 2015 surpassed the September 2013 rains, and every month in 2015 has surpassed the same month in the previous 2 years, thus far.



2012 – 2014 Re-vegetation



Multispectral satellite data analysis by U.S. Geological Survey, Special Applications Science Center, Denver, Colorado
Vegetation analysis produced from © DigitalGlobe July 4, 2012 Worldview-2; September 25, 2013 Quickbird; and August 30, 2014 Worldview-2 multispectral imagery. The datasets were orthorectified using USGS 10-m NED DEM information to improve spatial accuracy. Multispectral satellite imagery from DigitalGlobe through the NextView contract with the U.S. Geological Survey

2012 Acres Burned: 18,247
2013 Re-Vegetation: 1,086 Acres (6%)
2014 Re-Vegetation: 1,621 Acres (9%)
Total Re-Vegetation: 2,707 Acres (15%)

Northfield Reservoir and Drainage

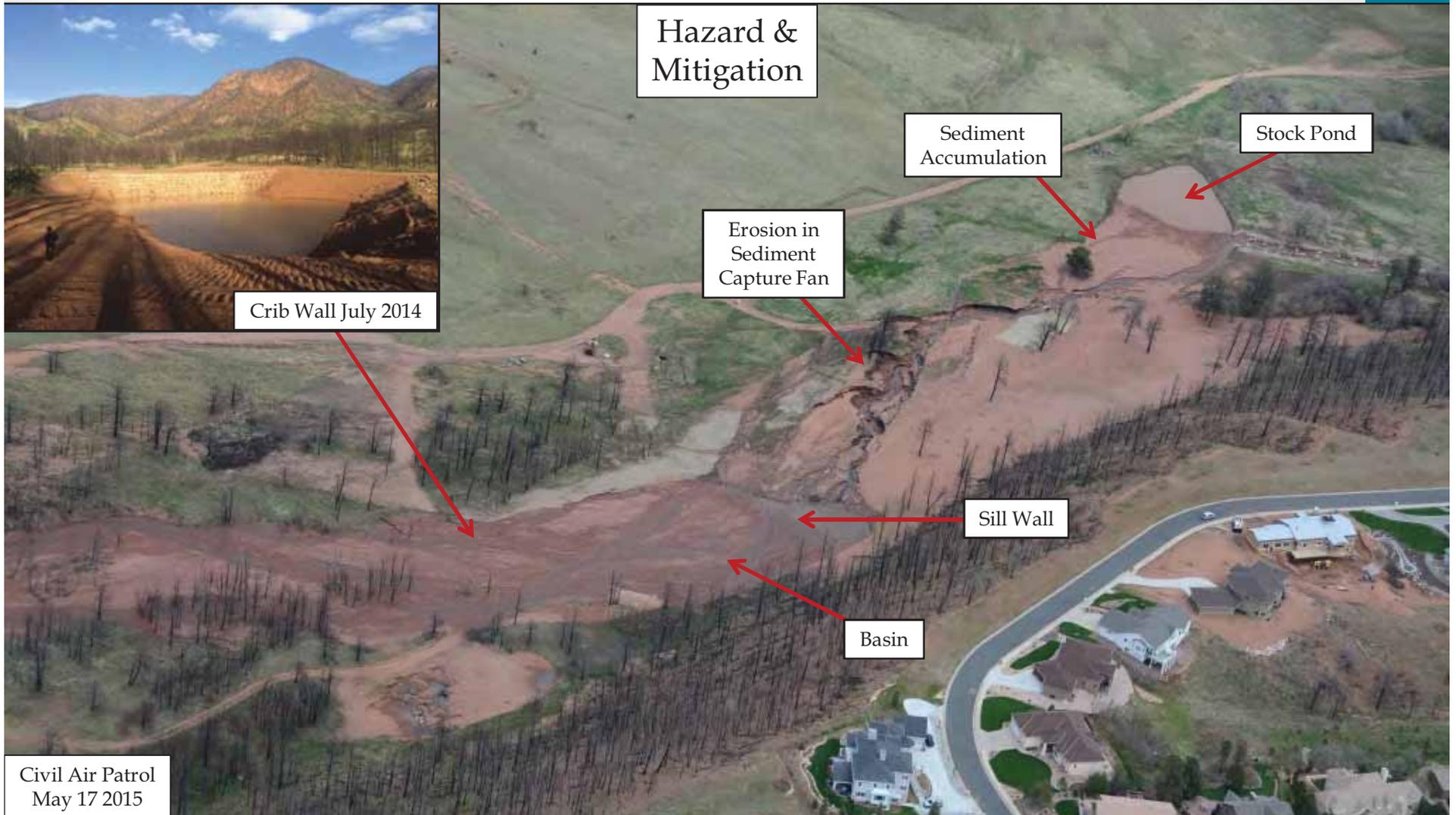


Mitigation



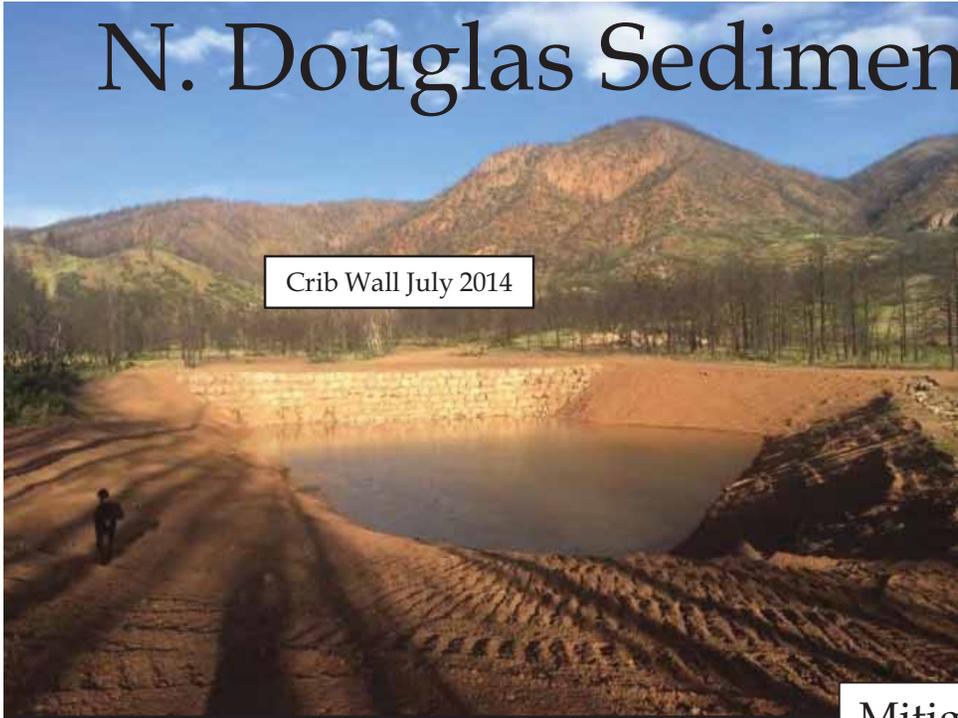
Civil Air Patrol
May 14 2015

N. Douglas Sediment Complex Flying W



North Douglas Creek on Flying W Ranch: The large sediment catchment complex was completely filled with sediment during the rains. The flatter fan area below the basin became incised by water eroding a new channel, and the stock pond is over 50% filled with sediment. The in-channel drop ponds did work well, but water circumvented the structures and created a new channel.

N. Douglas Sediment Complex Flying W



Crib Wall July 2014



Crib Wall August 2014

Mitigation

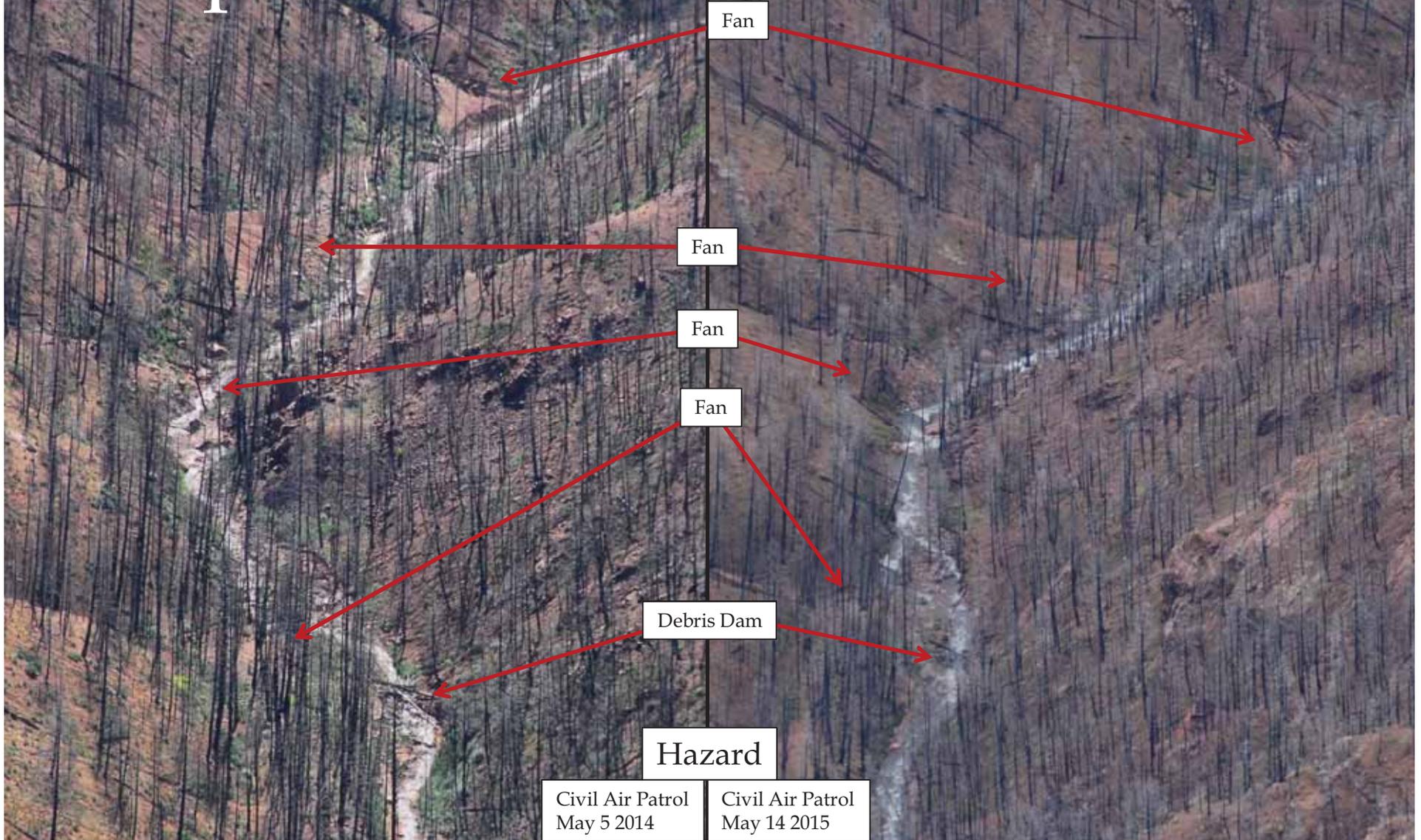


Crib Wall June 5 2015



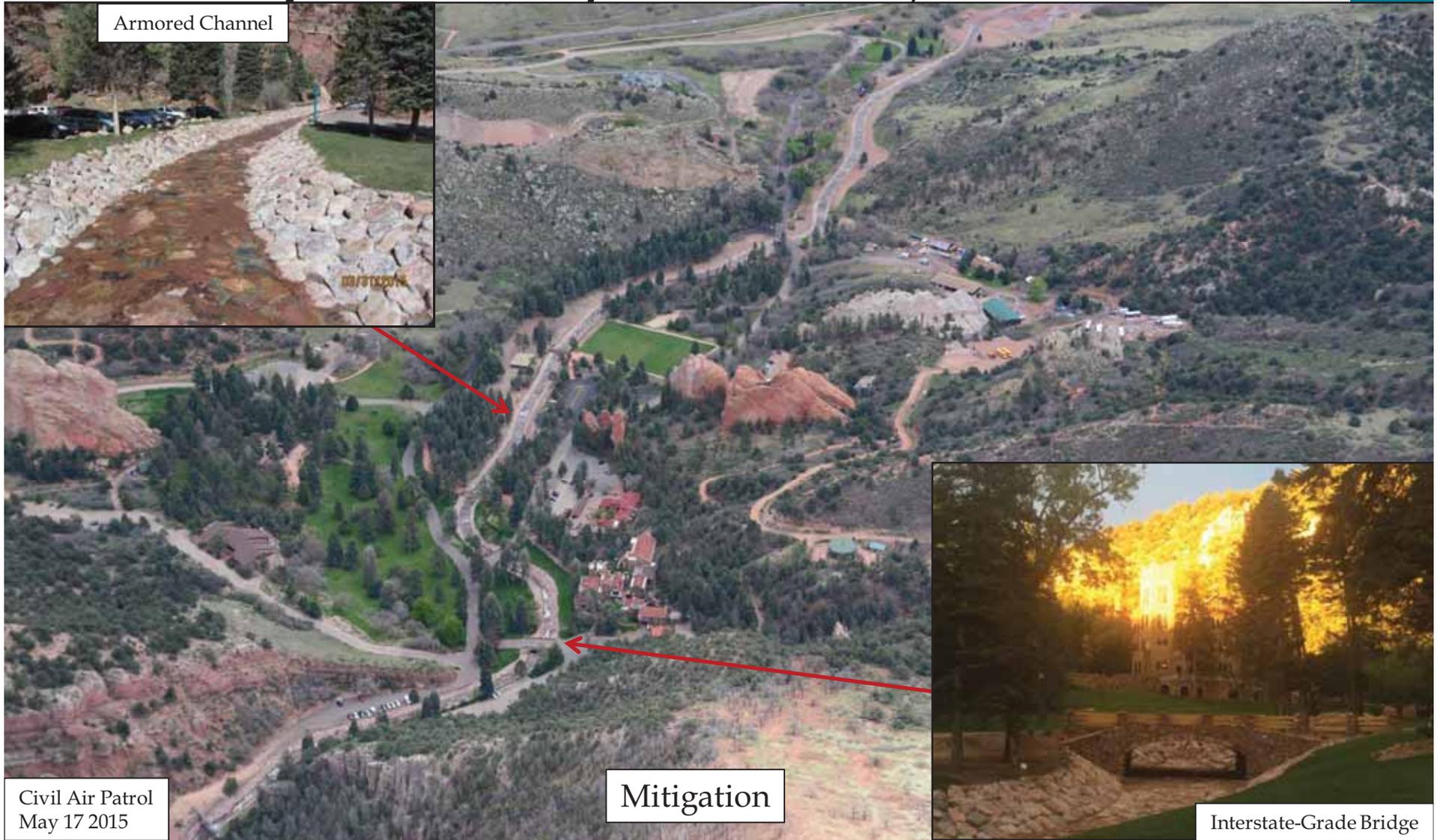
Crib Wall June 19 2015

Camp Creek Alluvial Fans Area



Camp Creek/Queen's Canyon: Comparing 2014 to 2015, an area where alluvial fans formed in 2013 has changed in 2015, with sediment moving into Camp Creek. Head cutting, gullying, and rilling continue to contribute large quantities of sediment to the area. A debris dam that formed in 2014 remained intact in 2015.

Camp Creek / Glen Eyrie



Armored Channel

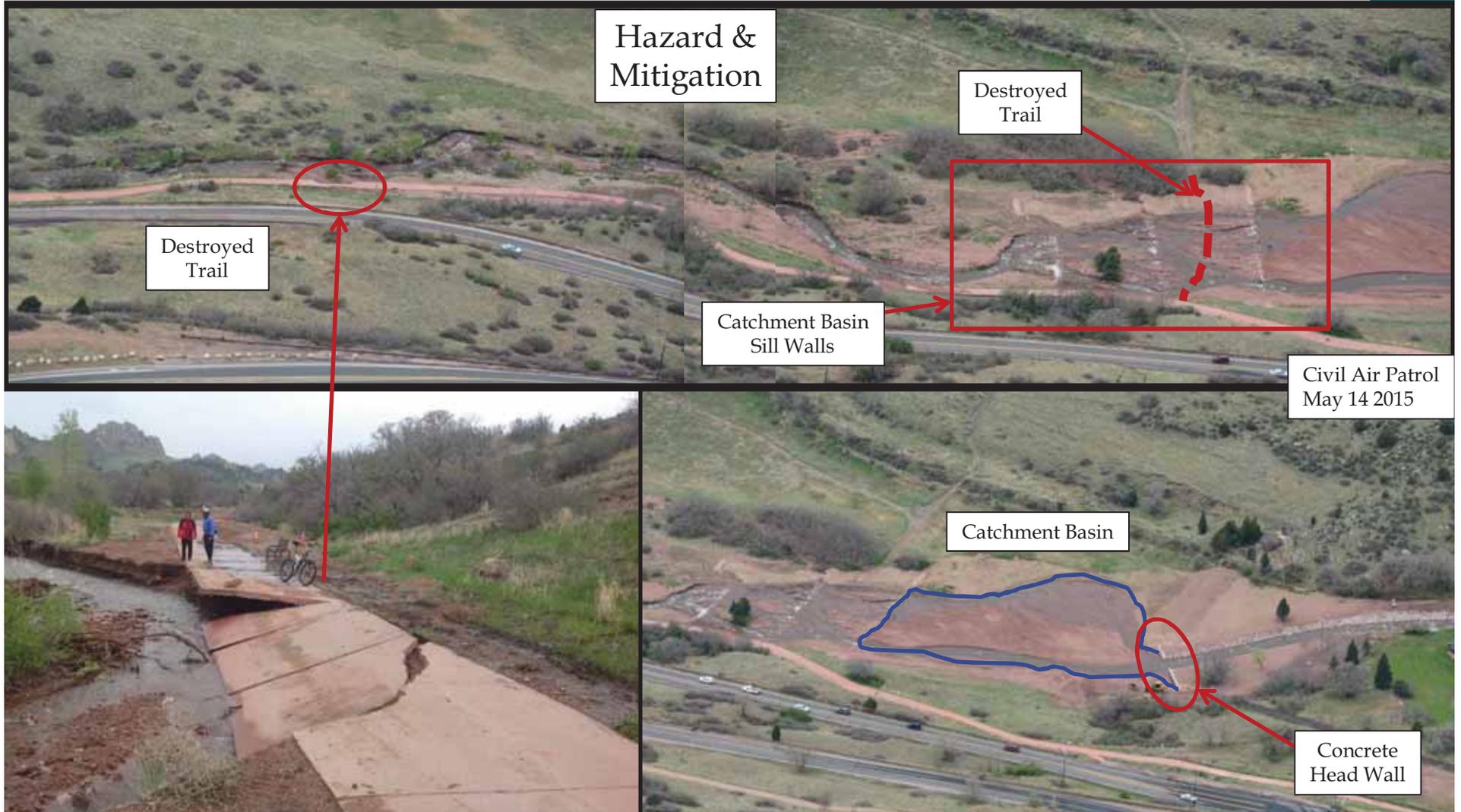
Mitigation

Interstate-Grade Bridge

Civil Air Patrol
May 17 2015

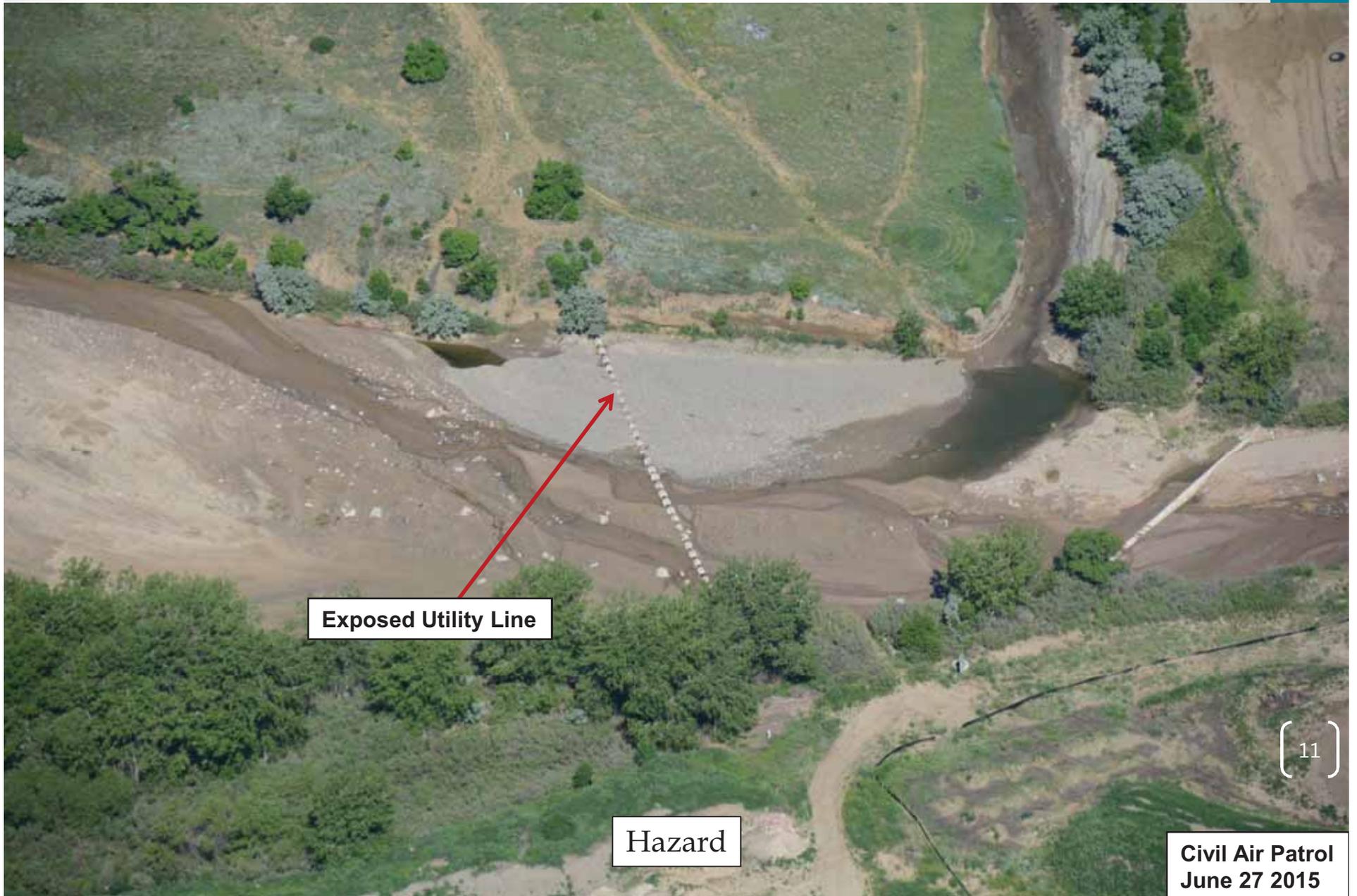
Camp Creek/Glen Eyrie: The Navigators armored the entire Camp Creek channel from the lower net to the border with Garden of the Gods; Colorado Springs Public Works had the channel armored to the basin. This protective measure worked well for moving water and sediment through the Glen to keep them safe.

Camp Creek/GoG Park



Camp Creek/Garden of the Gods Park: During the May 2015 rains, sediment from Camp Creek moved down the improved channel into the basin, quickly filling the basin and destroying two trails. Public Works Streets crews worked to keep some water flowing, but a new channel was cut by the flood waters.

Sand Creek



Exposed Utility Line

Hazard

Civil Air Patrol
June 27 2015

(11)