



Flagstaff Watershed Protection Project and Museum Fire Update

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Burning within the footprint of the Flagstaff Watershed Protection Project (FWPP), the Museum wildfire which began Sun July 21st and ultimately burned 1,961 acres in the Dry Lake Hills (DLH) area north of town and cost an estimated \$9 million to suppress, was a difficult, challenging, and unfortunate event.



Fire on evening of July 21st, looking north from Oldham Park area on Mt Elden Rd

On behalf of all those directly involved in the planning and implementation of FWPP, we wanted to share with you the latest regarding cause, impact to forest treatments, and our plans moving forward.

Last week, the long-awaited Investigation findings were released. Fire investigators have determined that the human-caused wildfire originated in a steep slope environment associated with critical restoration work and was likely caused by an excavator striking a rock during operations during early evening hours on the 20th. As required, the equipment operator stayed on-scene for one hour following shutdown that evening. But the resulting ignition, smoldering slowly, remained undetected until the next morning when conditions allowed the fire to spread. This is an extremely rare event, and there is no evidence to suggest the fire occurred due to negligence, equipment failure, or improper maintenance.

Throughout the Investigation effort, the Fire Investigators followed all leads and were able to rule-out many rumored causes, including an illegal campfire, fireworks, arson, shooting, spontaneous combustion, lightning, and even a UFO landing. We respect the skills they brought to bear, the process they followed, and are confident with their conclusions.

That doesn't erase the unfortunate nature of this event, nor does it make the impacts less challenging to manage moving forward. We are, however, comfortable with the operator and the operations themselves, something we recognize not everyone will accept. But in this instance, "blame" is not easy to affix.

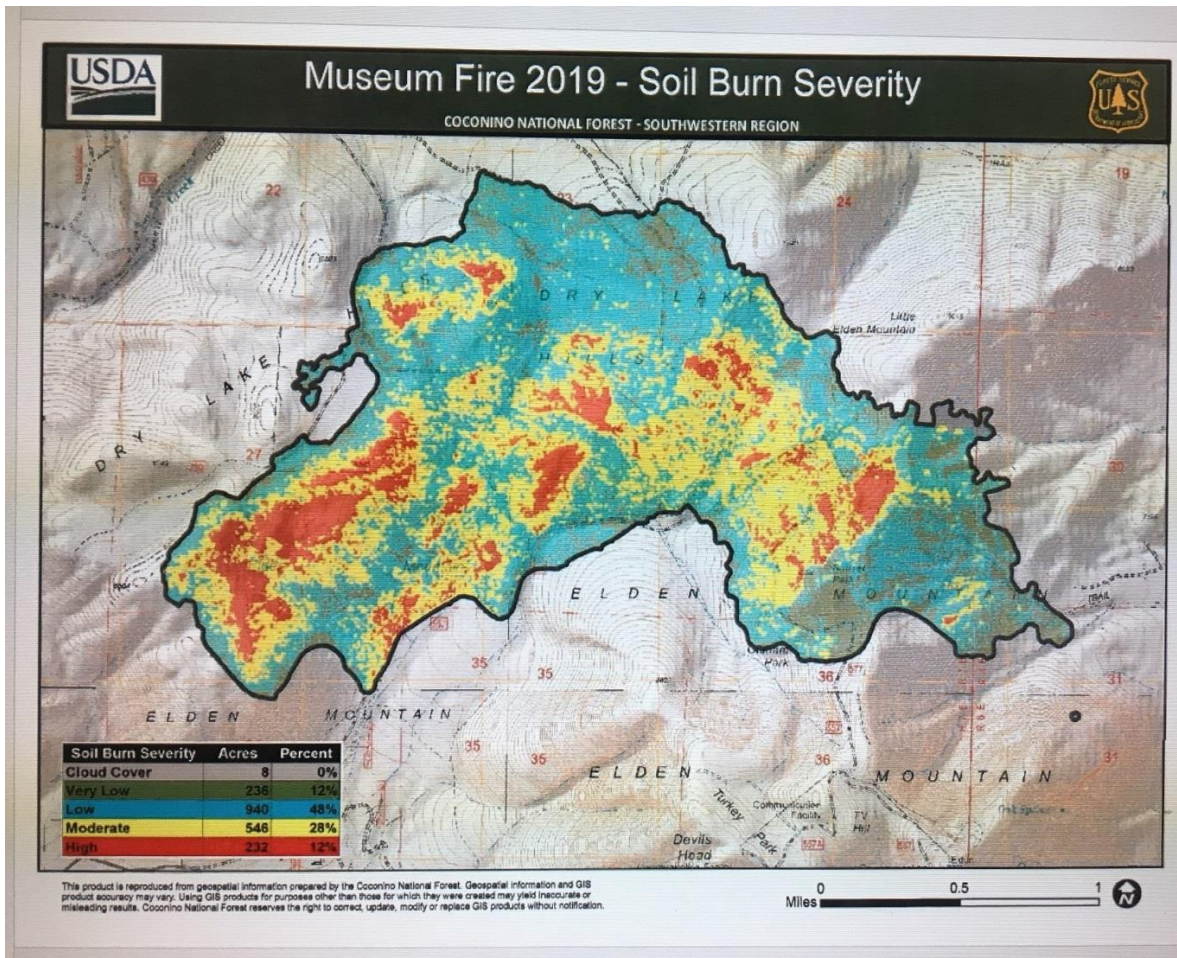
That being said, our partnership with the Coconino National Forest remains strong. During the past few years, City and Forest personnel have been working diligently to implement planned FWPP actions. The term "forest treatment" is best viewed as a continuum of work that involves Planning, Set-Up, Initial Cutting, Slash Removal and/or Disposal (typically via chipping or pile burning), Prescribed low-intensity broadcast Fire (often referred to as "ecological burning"), and finally, Monitoring.

Project- wide (City, State, County, Navajo Nation, and US Forest Service jurisdictions), we've made substantial progress over the past few years. (*See PROGRESS TO DATE story at end of this Report.*) Throughout the DLH area, our effort was, and remains, very much a work in-progress.

Specifically, at the dawn of Sunday July 21st:

- Planning and Set-Up were completed,
- Initial cutting work was less than half completed, but underway throughout the area,
- We had recently begun removing slash in some areas,
- In other areas, slash piles had been created and were drying for burning this winter,
- One-of-seven log decks had been sold-and-removed, two others were to be sold July 23rd, and plans were in-place for sale/disposal of the remaining decks,
- Initial planning efforts were beginning to implement a series of low-intensity prescribed burns in selected areas beginning next year and continuing for several years thereafter.
- Specific to the initial cutting work within the DLHs area:
 - **Phase I** consisted of mechanical and hand-thinning at the base of Mt Elden and was completed in 2018.
 - **Phase II** is on-going, and consists of five parts, with units scattered throughout the DLH area:
 - o Hand-thinning – roughly 65% completed. Crews from American Conservation Experience (ACE), AZ Conservation Corps (AZCC), City of Flagstaff (City Crew 1), and US Forest Service had been engaged in this work.
 - o Helicopter – approximately 95% complete, with only final clean-up and close-out work remaining. Two log decks did burn, but the value of this wood was minimal due to size, species, and condition. One hallmark of FWPP was removal of this low-grade, low-value timber that was choking our forests.
 - o Steep-Slope – work was in-progress, with roughly 45% completed.
 - o Orion Task Order – Work on this site had paused last year
 - o Oher operations – two contracts (Dry Lake Hills and Schultz Tank) were set-up and scheduled to be offered to local operators in the fall.

As shown below on the Soil Burn Severity Map, 12% of the area burned at high-severity (Red), while 60% burned at low severity (blue-green). The remaining areas (yellow) burned at moderate severity.



These percentages will shift and be refined as we move forward. It could have been much worse.

It's important to know when viewing this map that 1,225 acres (62%) of the entire burn area (1,961 acres) were in areas outside any planned, underway, or completed treatment areas. In other words, while the entire fire was within the FWPP map "footprint", only 736 acres (38%) of what people witnessed or have read about was inside of actual work areas.

Based upon this map, the extent of burning within the various treatment types are as follows:

Treatment Area/Type	Total Acres	Unburned Acres	Unburned %
o <i>Helicopter</i>	540	242	45
o <i>Steep Slope</i>	370	266	72
o <i>Elden Base</i>	663	586	89
o <i>Hand-Thin</i>	696	539	77
o <i>Orion Task Order</i>	891	891	100
o <i>Dry Lake Hills Unit</i>	613	607	99
o <i>Schultz Tank Unit</i>	466	372	80

The resulting Soil Severity, not unexpectedly, varied throughout the treatment types themselves. An important take-away is that effects vary across the landscape. Overall, of the total 736 acres within the treatment types that did burn, the break-out is as follows:

<i>Soil Severity Level</i>	<i>Total Acres</i>	<i>%</i>
o <i>Low</i>	289	39
o <i>Moderate</i>	292	40
o <i>High</i>	155	21

It will be a year or so before we have a firm grasp of overall tree mortality throughout the area. Trees have died, in some areas only individually or in small patches, in other areas it extends over a larger site. We do expect mortality to increase somewhat in the coming months: some that survived the flames will undoubtedly succumb to insects, stress, etc. But others will recover.

Finally, much of the FWPP treatment areas – 83% of the project – was outside the fire area as shown below:

<i>Treatment Types</i>	<i>Total Acres</i>	<i>%</i>
o <i>Burned</i>	736	17
o <i>Unburned – planned, underway, completed</i>	3,533	83
<i>TOTAL</i>	4,269	100

Despite what some may have thought, all is not lost: we have much work remaining!

Some reports from those on-the-ground during the suppression efforts, as well as our most recent assessments following the fire, indicate that the treatment work that had been completed did have some positive effects on fire spread and intensity. We will work to refine and better describe those as we move forward.

The effects of the fire to wildlife are of concern to many. Assessments to known Mexican Spotted Owls (MSO) within the fire area will take some time to complete. MSO have high site fidelity and we would expect that the adult birds associated with the designated protected activity centers (PACs) will return to these sites next year, if they survived the fire and associated suppression effects. It will be spring before the owls are responsive again, can be located, and short-term effects to site occupancy are known.

Recovery efforts and rehabilitation work are another area of interest. Current estimates for the Burned Area Emergency Rehab (BAER) work on federal ground are in the range of \$2 million. Work is now underway in two key areas:

- 1) Mulching of steep slopes to reduce potential for damaging erosion and flooding. This involves grinding of unburned, low-value logs and spreading the chips by helicopter over vulnerable ground, and is expected to wrap-up in the near future, and
- 2) Stabilization of the Mt Elden Rd, which may take some time.

In addition, somewhat separately, efforts are underway to secure additional funding to install stream channel catchment-type structures in a few locations to slow/trap water and debris flows, similar to that done on sites above the Timberline community following the 2010 Schultz fire.

Next Steps: As mentioned above, despite the fire, there is much forest treatment work remaining to be completed within the Project area. Obviously, the fire has caused us to pause-and-reset, but we are committed to re-engage and carry-on as soon as possible. The need, and our goals, remain unchanged.

As we move forward, we intend to –

- Continue with deck sales and log removal;
- Engage the Ecological Restoration Institute at NAU to revisit and assess the Vegetation/MSO Habitat plots they first established in the project area several years ago;
- Re-initiate both hand-thinning and Steep Slope cutting operations;
- Encourage/permit operations to restart on the Orion Task Order as planned;
- Complete and close-out the remaining clean-up work on the Helicopter contract;
- Re-package the original Dry Lake Hills contract and offer it to local operators next spring;
- Issue the Schultz Tank offering to local operators early next summer if feasible;
- Continue efforts with Coconino and Apache Counties to process and provide firewood to various Navajo Chapter Houses and Hopi Villages;
- Continue relocating slash in order to facilitate pile burning and or making material available to interested parties;
- Identify, cut, and remove hazard trees along the Mt Elden Road;
- Conduct road maintenance on both Schultz Creek and Mt Elden Roads, and;
- Reconstruct damaged trails, to include portions of the Rocky Ridge, Sunset, Lower Oldham, Brookbank, and AZ National Scenic Trail.

We are thankful that no structures were damaged during the fire, and that out of the nearly 100,000 hours of suppression-related work that did occur, there were only two relatively minor injuries. All those involved in that fight, our partners, deserve a big-thanks. We will work diligently to extend that safety record throughout the duration of all FWPP related work.

As all know, despite the success in keeping this fire relatively small, post fire flooding in some areas is a very real threat. Both the City and County, along with many unknown and unnamed volunteers, have worked tirelessly to mitigate the anticipated impacts. Like the firefighters, they deserve our thanks. The danger of flooding will likely be with us for some time – please pay attention to this threat and do not let your guard down.

Finally, throughout it all, we appreciate your support. FWPP is a complex, fluid on-going operation involving many partners and stakeholders. It is truly the first-of-its-kind effort in the country. We intend to honor your support by dusting ourselves off and completing what we've begun, work you first approved during the Nov 2012 election.

PROGRESS TO-DATE: FWPP HIGHLIGHTS

- Completed all environmental analysis (National Environmental Policy Act – NEPA) on federal lands.
- Completed boundary surveys on federal lands within the project footprint in the Dry Lake Hills area.
- Constructed 4½ miles of temporary roads and rebuilt/resurfaced nearly eight miles of existing roads.
- Completed:
 - Nearly 3,300 acres of tree marking.
 - Just over 5,500 acres of cutting,
 - Chipped nearly 1,500 acres of debris, supplying Salt River Project with material used for their electrical generation test at the St Johns power-plant.
 - Nearly 3,500 acres of pile and broadcast burning.
- Provided over 3,000 cords of firewood to area residents, and supplied wood to local forest operators.
- Managed both the Helicopter and Steep-Slope timber operations, each the “first-of-their-kind” in AZ.
- Engaged local area volunteers, to the tune-of-nearly 20,000 hrs of contributed labor.
- Installed four gauge stations (three in Dry Lake Hills, one at Lake Mary) to monitor streamflow.
- Created the City’s Monitoring Plan.
- Hosted over 75 events/field trips.
- Completed field tests of an emerging tablet technology that may replace tree paint.
- Served as an on-going outdoor living lab for NAU students.
- Trained over 50 American Conservation Experience (ACE) and AZ Conservation Corps (AZCC) crew members.
- Employed 90 seasonal crew members, many from the immediate area.
- Engaged our many collaborative partners who have contributed an additional \$8 million dollars of in-kind and cash leverage.