



United States
Department of
Agriculture

Forest
Service

Southwestern
Region



Wallow Fire 2011

Large Scale Event Recovery

Rapid Assessment Team

Infrastructure, Roads, and Recreation/Facilities

Apache-Sitgreaves National Forests

Submitted by:

/s/ Ryan E. Beach
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Public Health and Safety

The public health and safety applies to every resource area; therefore, it necessitates discussing it as its own resource area. The Public Health and Safety is extremely important to the forest in every facet of program implementation and must be a pivotal part in the day to day operations. When it is applied to the engineering resource areas it mainly encompasses infrastructure, roads, and facilities.

Current Condition

The health and safety of the public accessing the forest whether it be on recreational trails or roads was in adequate condition before the fire. The public could access the forest without being subjected to known hazards. The health and safety of the public after the fire is subjected by many known hazards in the trails, recreation, and roads. This is why many portions of the forest are closed to the public due to these known hazards. The forest is looking at emergency fixes and long term fixes so that these closed portions may be opened over time.

Recommended Actions to Address Current Condition

To protect the public on roads, rec. facilities, and trails the long term treatments of the forest is to get rid of hazard trees. The forest is implementing emergency hazard tree removal now; however, more trees will need to be removed over a longer timeframe.

The facilities at recreation areas need to be cleaned of debris from fire and flooding to ensure they are still accessible. The roadways should have any debris from fire or flooding removed and the roads should be monitored for roadside hazards due to flooding (i.e. erosion, rocks, and fallen trees). These are just a few ways to ensure public health and safety.

Drainage structures on the forest should be monitored to ensure public health and safety is addressed. This is why monitoring after a 5-10 yr. storm event is necessary and every 2 weeks during monsoon season.

Consequences of No Actions

A dam or large drainage structure would failure would have dire consequences to someone downstream of the structure. The potential of a hazard tree striking a visiting member of the public could cause great bodily harm or even death. These would have a serious negative impact on public health and safety. It would also cause potential litigation issues for the forest if these events were to occur.

Cost of Actions

See Recreation Cost Estimate for Hazard Tree Removal

See Road Cost Estimate for Hazard Tree Removal, Signing, and Gates

Infrastructure Repair, Replacement, and/or Rehabilitation

Infrastructure located in the fire perimeter

Infrastructure	Forest Service	Other Owned	Total	Damaged
Dams	4	15	19	0
Lookout Towers	4	0	4	2
Administrative Sites	1	0	1	0

- 19 Dams: 4 Forest Service Owned (Hulsey Lake, Acre Lake, Sierra Blanca, Crescent Lake), 5 Arizona Game and Fish Owned, and 10 Privately Owned
- 4 Lookout Towers: Escudilla, Big Lake, Reno, and PS Knoll
- 1 Administrative Site: Water Canyon

Current Condition

A total of 19 dams were properly functioning before the fire and only 1, Colter Reservoir, had any deficiencies listed by ADWR from past inspections. The dams had no direct affects from the fire; however, the dams may receive indirect impacts due to increased flow events.

The four lookout towers were maintained to standard and fully operational prior to the Wallow Wildfire. Two of the four lookout towers, Escudilla and Big Lake, had deferred maintenance items completed last summer including new roofs, repainting the cabs, and window replacements. The Escidulla Tower was subjected to high intensity heat; all parts of the structure not constructed of steel were destroyed. The tower will require complete replacement as the steel has been structurally compromised by the heat. Big Lake Lookout Tower was subjected to high intensity heat; the entire cab was destroyed and the steel tower has deformed from the heat. The tower will require complete replacement.

The Big Lake Recreation Area had 200 feet of the security fence surrounding the sewage lagoons and previously-operated water plant is damaged from fallen trees due to fire activity. 625 square feet of the lagoon liner in the primary lagoon was melted by a burning tree falling across the fence into the lagoon.

The Water Canyon Administrative site, which consists of a residence, barn, miscellaneous out buildings, and a well and septic system, was in good condition. A new well was just constructed and put into service last year with ARRA funding. The residence and barn were in need of exterior painting and some minor maintenance to doors and windows.

The recreation eight of the nine developed recreation areas were fully operational with no major deferred maintenance requirements. The remaining one, West Fork of the Black River, was in poor condition with regards to the vault toilet structures. Six of the seven toilet structures were listed for replacement with two being recommended for

closure for health and safety concerns. At one developed trailhead, Government Springs, the vault toilet was in good condition.

The West Fork Campground had one vault toilet building that was burned to the ground. The remaining infrastructure was not affected directly from the fire but will require treatments to protect the sites from post-fire conditions, specifically anticipated debris and water flows from moisture events over the next five years.

Recommended Corrective Actions

Priority	Action Items	Timeframe
H	Clean out sediment build up from Hulsey, Sierra Blanca, and Acre Lakes	0-10 yrs. or until floods dissipate
H & S	Monitor all dams for debris flows	0-10 yrs. or until floods dissipate
M	Replace Escudilla and Big Lake Lookout Towers call the R-3 Fire and Aviation for final location	1-3 yrs.
M	Monitor administrative buildings for any flood damage	0-10 yrs. or until floods dissipate

Consequences of No Action

The consequences of not addressing the infrastructure issues with the dams, buildings, and fire lookout towers could result in degraded ecosystems, compromised public health and safety, and reduced recreational facilities. These will most certainly cause a loss in public confidence and could potentially cause bodily harm or injury to Forest Service personnel and individuals in the public.

Roads

Current Condition

The transportation system that was in place pre-fire was constructed for logging activities in the 1970's and 1980's. Roadway prism and drainage structures were constructed to roadway standards for heavy haul trucks. The roads were maintained to standard and in some areas exceeded the standards to reduce sediment transport into adjacent streams. Additional road improvements were placed into these areas based on the high volume of recreational users. The roads in the burned area have received a large amount of maintenance improvements in the past three to five years. The work was accomplished with appropriated budget and other funding sources (CMLG, ARRA, and grants). Overall, the roads were in very good condition.

Roads, culverts, and bridges in the fire area would now be prone to debris flows, sedimentation, and flooding. Increased maintenance would be required until the burned area has stabilized. Roads in low to moderate burn areas would be subject to increased hazard and blow down trees due to the adverse effects of fire and bug infestations on existing green trees.

Inventory of Roads in Burn Perimeter and Severity Limits

Maintenance Level	High	Moderate	Low	Unburned	Grand Total
DE	10.33	8.54	41.91	19.11	79.89
ML 1	230.40	186.02	646.12	193.86	1256.40
ML 2	65.82	62.57	234.31	87.90	450.60
ML 3	26.12	18.58	90.19	78.74	213.63
ML 4	1.84	3.05	35.63	41.07	81.59
ML 5	1.55	3.62	35.68	51.57	92.42
Grand Total	336.06	282.37	1083.84	472.26	2174.53

- Maintenance Level (ML)
- ML 1 = Intermittent service roads during the time they are closed to vehicular traffic.
- ML 2 = Roads open for use by high clearance vehicles.
- ML 3 = Roads open and maintained for travel by a prudent driver in a standard passenger car.
- ML 4 = Roads that provide a moderate degree of user comfort and convenience at moderate travel speeds
- ML 5 = Roads that provide a high degree of user comfort and convenience.

Inventory of Bridges in Burn Perimeter and Severity Limits

Maintenance Level	High	Moderate	Low	Unburned	Total
ML 2			2	1	3
ML 3			5	1	6
ML 4				1	1
Total			7	3	10

Inventory of Culverts in Burn Perimeter and Severity Limits

Maintenance Level	High	Moderate	Low	Unburned	Total
ML 1		4	1	1	6
ML 2	31	123	14	33	201
ML 3	127	529	106	401	1163
ML 4	4	213	20	128	365
ML 5		2		21	23
Total	162	871	141	584	1758

Inventory of Signs in Burn Perimeter and Severity Limits

Maintenance Level	High	Moderate	Low	Unburned	Total
ML 1	1		5		6
ML 2	7	12	119	85	223
ML 3	61	54	285	513	913
ML 4		4	150	168	322
ML 5			5	40	45
Total	69	70	564	806	1509

Inventory of Gates in Burn Perimeter and Severity Limits

Maintenance Level	High	Moderate	Low	Unburned	Total
ML 1		4	7	2	13
ML 2	5	9	25	16	55
ML 3		1	1	5	7
ML 4				1	1
ML 5				2	2
Total	5	14	33	26	78

Inventory of Cattleguards in Burn Perimeter and Severity Limits

Maintenance Level	High	Moderate	Low	Unburned	Total
ML 1			4		4
ML 2	2	1	15	13	31
ML 3	3	6	32	42	83
ML 4	1	1	16	12	30
Total	6	8	68	68	150

Inventory of Drainage Dips in Burn Perimeter and Severity Limits

Maintenance Level	High	Moderate	Low	Unburned	Total
ML 1	10	24	55	10	99
ML 2	47	94	340	126	607
ML 3	1	28	57	35	121
ML 4			1		1
Total	58	146	453	171	828

Inventory of Aquatic Organism Passages in Burn Perimeter

	Red	Gray	Total
Crossings	10	8	18

Recommended Corrective Actions

Priority	Action Items	Timeframe
H&S	Hazard Tree Removal	0-2 yrs.
H&S	Adequate signage/Hazards	0-2 yrs.
H&S	Gate replacement	0-2 yrs.
H&S	Low water crossings	0-2 yrs.
H	Cattleguards	0-2 yrs.
S	Storm patrol	0-10 yrs.
H	Bridge/culvert sed	1-3 yrs.
H	Jersey barrier drainage	0-2 yrs.
H	Crossing overflow struct.	0-2 yrs.
H&S	Larger culverts critical WS	1-3 yrs.
H	Fix roadway surf & prism	1-3 yrs.
H	Surf.&prism Maint ML 3-5	1-3 yrs.
H	Repl major stream culverts	1-3 yrs.
H	Brdg Replace NFSR 26 & 25	1-3 yrs.
H&S	Arch Culvert @ NFSR 68	1-3 yrs.
M	Riprap inlets, outlets & ditches	0-2 yrs.
H	Monitor bridges/HEC RAZ	0-2 yrs.
M	Clean bar ditches add Cap	0-2 yrs.
H	Clean culverts openings	1-3 yrs.
H	Plan/monitor road closure	3-10 yrs.
L	Remove hazard signs	3-10 yrs.
L	Remove dips/LW xings	3-10 yrs.
M	Reeval AOP xings	3-10 yrs.
M	Priority Impl AOP projs	3-10 yrs.
L	ML 1 Road Closure	3-10 yrs.

Consequences of No Actions

The consequences of not taking action to stabilize the transportation system in terms of roads and bridges could have adverse impacts for years. The National Forest Service Road system allows visitors to access the forest for many recreational activities. If corrective action is not taken to protect the roads and bridges the public may have limited access to the forest. Additionally, forest service personnel meant to aid the ecosystems damaged by the fire will not have access which would cause the natural resources to degrade.

Many consequences will be encountered if public health and safety issues such as warning signs, hazard trees, and forest access are not addressed. The public health and safety is an important aspect to accessing the forest without encountering known hazards. If the hazard trees and warning signs are not addressed by the forest it may lead to a less safe situation and potentially lead to minor or fatal injuries.

Repair, Replace, and Rehabilitate Recreation and Other Facilities

The repair, replacement, and/or rehabilitation of recreational trails and facilities was first analyzed by the burn area emergency rehabilitation (BAER) team. That analysis was done to determine scope and severity of the damage of the recreational facilities. The chart below indicates all of the recreational trails and facilities within the burn perimeter. These items will be analyzed by the rapid assessment team to determine a prioritized list of actions and costs.

Inventory of Facilities in the Burned Area

Recreation Facilities	Amount
Small Campgrounds	8
High-Rec. Complex	2
Low-Rec. Complex	1
Large Concession Rec. Complex	2
Scenic Overlooks	2
Rental Cabin	1
Small Campgrounds	8
Large Rec. Day Use Only	2
Small Rec. Day Use Only	3
Non-Motorized Trail Miles	365
Motorized Trail Miles	25
Trailheads	40

Current Condition

All recreation facilities within the fire affected area were maintained to standard prior to the Wallow Fire for the protection of human life, health, and safety, and for the protection of government-owned facilities, and were open for use by the public.

Trails were maintained to standard for the protection of public health and safety, and to prevent damage or degradation of natural resources and were open for use by the public. User-created, dispersed campsites are not managed or maintained as Forest recreation facilities. Certain sites were closed to public entry prior to the fire because of hazardous conditions previously observed by Forest personnel.

Directly Affected

Sewage Treatment Lagoon at Big Lake Recreation Area

Perimeter fence is damaged by several fallen trees, a portion of the pond lining has burned, and there is severe bubbling of the liner within the bottom of the pond

13 trailheads not directly field assessed due to safety concerns (assumption)

An indeterminate number of user-created, dispersed campsites across the fire-affected area

Indirectly Affected

South Fork Campground (South Fork Little Colorado River watershed)

East Fork Recreation Area (East Fork Black River watershed)

West Fork Campground (West Fork Black River watershed)

Government Springs Trailhead (Little Colorado River Watershed)

Head of the Ditch Campground (Admin. by Gila N.F., Quemado R.D.) (San Fran River Watershed)

Minimally Affected

Pine Group Site of Apache Trout Campground at Big Lake Recreation Area

Bobcat Loop of Winn Campground

Benny Creek Campground

South Fork Campground

Point of the Mountain Scenic Overlook

Hulsey Lake Day Use Fishing

Hannagan Campground

KP Cienega Campground

West Fork Campground

East Fork Recreation Area

Caldwell Cabin

Blue Vista Overlook

29 Trailheads that were directly visited

Because of continuing fire activity within the area, and physical threats to safety, it was not possible to directly observe damage to trails at this time. The earliest projected safe time to complete on-the-ground assessments of trails will be in fall of 2011, after the summer monsoon season has ended.

Recommended Corrective Action

Priority	Action Items	Timeframe
H&S	Hazard Tree Removal	0-2 yrs.
H&S	Dev Rec Site Clos Plan	0-2 yrs.
H&S	Remove Grnd Hazards	0-2 yrs.
M	Repair Damage Toilets	1-3 yrs.
M	Repair CG Sites	1-3 yrs.
M	Interpretive Sites	1-3 yrs.
M	Rec Site ID	1-3 yrs.
M	Information Kiosks	1-3 yrs.
M	Motorized Trail Repair	1-3 yrs.
M	NonMotor Trail Repair	1-3 yrs.
M	Restore Closure Trails NM	1-3 yrs.
H&S	Trails Haz Tree Removal	0-2 yrs.
M	Repair Trailheads	1-3 yrs.
H&S	Hazard Tree Removal	0-2 yrs.

Consequences of No Actions

The consequences of not repairing recreational trails and facilities could have a potential negative impact on public perception and public health and safety. The Apache Sitgreaves National Forest receives thousands of visitors each year from Arizona, New Mexico, and around the country. If the recreational areas are left damaged and unsafe then there would be serious backlash from the public. In addition, the liability of the Forest Service is greatly increased if these action items are not addressed.

Partners and Funding Sources

Partner	Contact	Area of Interest	Potential Contribution
USFWS	Mark Kaib	AOP Crossings	Unknown
Fish and Game	Dave Dorum	AOP Crossings	Unknown
FHWA	Tom Puto	ERFO	Unknown

Skills and Staffing Needs

Job Title	Series/Grade	# of Positions Needed	Timeframe Needed
Civil Engineer	810/GS-9/11	2	Present to 4 yrs.

***REFER TO APPENDIX A “ACTION ITEMS AND PROJECTED COSTS SUMMARY” FOR COSTS IN EACH CATEGORY

References

United States Department of Agriculture, Forest Service. 2008 Forest Service Manual, Title 2300 - Recreation, Wilderness, and Related Resource Management. Washington, DC

United States Department of Agriculture. December, 2006. “Burned Area Emergency Response Treatments Catalog.” San Dimas Technology & Development Center. San Dimas, California.

Low Volume Roads Engineering. July, 2003. “Best Management Practices Field Guide” Gordon Keller & James Sherar, USDA Forest Service/USAID.