

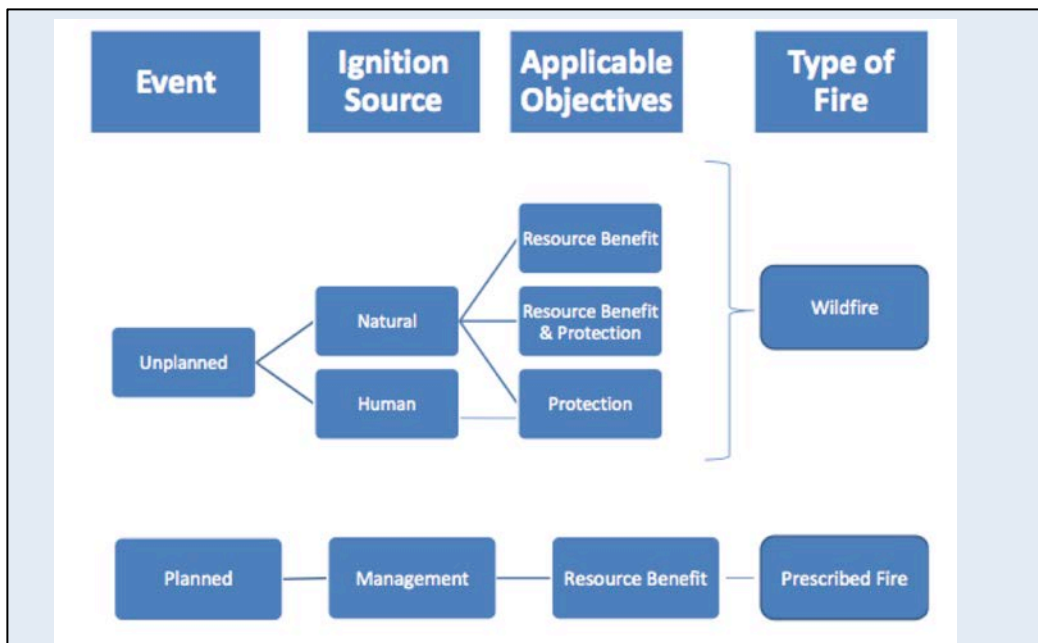


Managing Fire for Multiple Objectives: Blazing the Trail in the Southwest

Federal wildfire management policy has changed dramatically with the 2009 implementation guidance. Fire managers can now manage fires for multiple objectives on the same fire, simultaneously managing for resource benefit on one flank of the fire while suppressing another flank that threatens homes, infrastructure, and other values. Fire managers across the Southwest have taken the lead in using wildfire management as another tool to treat hazardous fuels and restore fire-dependent ecosystems.

The Point Fire started with a lightning strike on the North Rim of the Grand Canyon, about 10 miles to the west of the developed area on the North Rim on the 4th of July in 2011. The initial start was in a ponderosa pine forest with some mixed conifers and patches of grasses and sage.

Chris Marks, Deputy Fire Management Officer for Grand Canyon National Park, was the incident commander for the fire. Marks says that the Point Fire represents a good example of the changes in fire management that have occurred since the 2009 Federal Interagency Implementation Guide was released.



The 2009 Implementation Guidance has also brought about a change in terminology in wildland fire. The terms “wildland fire use” or “suppression fire” are no longer used. There are now two types of fires: wildfire and prescribed fire.

Source: New Mexico Environment Department, Smoke Management Program

“What the new policy helped us do was change objectives over the life of the fire, which was about eight weeks,” says Marks. “The fire started small and we had almost all resource benefit objectives. As the fire grew, we were able to add protection objectives. As new issues came up – habitat issues, size of fire, park closure, we were able to add even more protection objectives to the list.”

According to Marks the new policy allowed managers to avoid having to “convert” the fire. In the past the fire would have initially been managed for resource benefit as a wildland fire use fire, and they would have had to convert the fire to a suppression fire to take necessary protection actions in certain areas. At that point, they would not be allowed to shift back to management for resource benefit in other areas of the fire.

“As our objectives changed, the management of the fire didn’t change, the administration of the fire didn’t change,” says Marks. “All that changed was management on the ground. We shifted from monitoring to actually taking actions to suppress parts of the fire.”

In the view of fire managers, the increased flexibility in terms of management options for fires is the key benefit provided by the 2009 guidance. For many, these changes could not have come too soon. Fire activity in the West has increased greatly over the last few decades with larger, more intense fires. The build-up of fuels in many forests, a warming climate, drought, and beetle outbreaks have combined to create a perfect storm of conditions leading to large, severe wildfires. The new policy has left many cautiously hopeful that fire

managers can now get more fire on the ground and start making headway on the overwhelming fuels and forest management challenges that plague many areas of the West.

This past spring, we talked with fire managers in the Southwest about the policy guidance, the changes it has meant for fire management, and the challenges they continue to face in managing fire.

A More Flexible Approach

Joe Reinarz is a Fire Management Officer on the Kaibab National Forest. He is also a Type 1 Incident Commander for the Southwest Area Incident Management Team. As an Incident Commander on both the Wallow Fire and Las Conchas Fire in 2011, Reinarz has been responsible for implementing the policy guidance on some of the largest fires in recent history. The Wallow Fire in eastern Arizona burned through 538,000 acres and was the largest fire in Arizona history. The Las Conchas burned 156,000 acres and at the time was the largest fire in New Mexico history. That record stood for less than a year, as the Whitewater-Baldy Complex surpassed it in early June of 2012 (at the time of writing, the fire had reached just short of 300,000 acres). Reinarz says that the policy has given managers the opportunity to use different strategies and even a mix of strategies that might have been more restricted in the past.

“The 2009 policy helps because of the ability to do what is right when it needs to be done – instead of going to the next ridge, go to the best ridge. You can put a fire out over here and manage it over there,” says Reinarz.

That view is echoed by all of the managers that we interviewed. The ability to manage a fire for multiple objectives is leading to fire management approaches that just make more sense. Instead of having to make a very quick and difficult decision about managing a fire for resource benefit or declaring the fire a suppression fire, managers can now do both and adjust with the changing conditions on the ground. They may allow one flank of a fire to continue burning through remote backcountry, while actively suppressing another flank that threatens homes, infrastructure, or other values.

The policy is also making it easier to manage fires across unit boundaries. In 2010, the implementation guidance was used to manage the Saffron Fire, which ignited on lands managed by Grand Canyon National Park, but spread on to the Kaibab National Forest. David Robinson, the North Zone fuels specialist for the Kaibab National Forest and Grand Canyon National Park, says that the new policy gave managers the ability to meet the resource management needs of both units.

“On the Park side of the Saffron Fire, we had more of a focus on resource objectives, allowing fire to play its natural role. But as that fire moved to the north on to Forest Service property, we were able to stay within the confines of the land management plan for the Forest and set up protection objectives. So, we managed for multiple objectives on various sides of the fire, and that policy gives us the flexibility to do that,” says Robinson.



Fire managers coordinate actions as a fire crosses the fence between Grand Canyon National Park and Kaibab National Forest.

Credit: Grand Canyon National Park

Chris Marks says that the new policy has made managers more comfortable with managing wildfire and helped them to move away from the suppression-first mentality.

“I think a lot of programs were afraid to manage fire for resource benefit. They had been suppression-oriented programs for a hundred years and it was really hard for them to take that leap from putting all fires out to really allowing a fire to do anything and everything it wants to do out there. Now people are more comfortable taking actions to contain parts of the fire and other actions on other flanks to just monitor and let the fire grow. I think that was a huge step in the right direction for all of the programs,” says Marks.

The Fuels Challenge

The Coconino National Forest has only had authority to manage wildfires for resource objectives since 2007. In the first few years of the program, managed

wildfire was a very small portion of the fuels treatment program, accounting for only 320 acres in 2007 and 1,505 acres in 2008. However, with the change in policy in 2009, managed wildfire became a major component of the fuels program with 21,116 acres treated in 2009, and 5,860 acres treated in 2010, and 8,299 acres treated in 2011. The spike in 2009 is mainly related to favorable conditions that allowed for more long-term managed wildfire, but according to Vic Morfin, a fuels specialist with the Coconino, the policy changes have created the opportunity to expand the use of wildfire to treat acres considerably.

“The wildfire piece of the pie has increased, and we are hoping it continues to increase,” says Morfin.

The same patterns are seen across the Southwest as well. Since 2009, the amount of acres treated by wildfire has become a significant portion of the overall regional fuel treatment program (see table this page).

These numbers still represent a drop in the bucket compared to the fuels challenge ahead. By some estimates, there

are over 100 million acres of forested land in the West that have uncharacteristically high fuel loads, and in 2010, the Forest Service treated only 3 million acres with mechanical thinning and prescribed fire.

So, can managed wildfire make up the difference? Joe Reinarz thinks it is certainly a step in the right direction.

“It took us 150 years to get to the point we are standing in right now. We are not going to get out of it in four or five years,” says Reinarz. “It is going to take time to get where we are going. The policy we have now is giving us the option to move in that direction.”

Arthur Gonzales, a fire staff officer with the Kaibab National Forest, agrees.

“We know that there are a lot of acres out there to treat. We will never do it with thinning alone or with prescribed fire alone. Now we are bringing wildfire more into the mix, so it is another tool that we’ll have,” says Gonzales.

In fact, managed wildfire may be the only financially viable option for treating

Acres treated for hazardous fuels in Forest Service Southwestern Region over the last several years through wildfires, prescribed fires and mechanical methods. Wildfire Outcome differs from Wildland Fire Use in that all naturally ignited wildfires, regardless of objectives, can be assessed to determine if acres moved towards desired conditions as identified in Land Management Plans.

	Wildland Fire Use	Wildfire Outcomes	Prescribed Fire	Mech. Fuel Treatments	Total
2001	8,360		97,247	24,760	130,367
2002	7,907		60,903	9,156	77,966
2003	168,559		90,747	35,816	295,122
2004	14,981		151,267	103,655	269,903
2005	115,669		127,704	100,684	344,057
2006	42,890		170,101	83,800	296,791
2007	43,249		154,834	66,054	264,137
2008	27,379		138,908	65,763	232,050
2009	163,467		194,364	48,919	406,750
2010		49,314	140,003	40,400	229,717
2011		55,297	99,043	45,717	200,057

forests on landscape scales. With the decline in markets for harvested wood across the West, the cost of mechanical fuel treatments is considerable—between \$500 and \$2,000 per acre depending on the location. Prescribed fire is much cheaper at \$75 to \$200 per acre, but the restrictions – namely narrow burn windows, and smoke impacts – limit how much of the forest can be treated. The Kaibab National Forest found suppression costs on recent fires to be as high as \$1080/acre (costs are highest when fire threatens the wildland-urban interface); however, management of wildland fires to meet resource management objectives costs as low as \$50–80 per acre, according to staff on the Coconino and Kaibab National Forests (Forest Service 2010). On the Gila National Forest estimated costs of managing fires to meet resource management objectives to range from \$35–209/acre, depending on whether the fire was in remote areas of the backcountry or required protection of different values in more populated areas (Forest Service 2010).

At a time when the Forest Service should be ramping up efforts to treat fuels and increase the resilience of forests to meet the coming challenges of climate change, budgets have steadily decreased, further reducing the ability of units to treat forests using mechanical thinning and prescribed fire. In the proposed federal budget for fiscal year 2013, funding for the treatment of hazardous fuels is cut by 24% for the Department of Agriculture and 21% in the Department of Interior. These cuts would fall on the heels of significant cuts over the past several years.

“Budgeting is our biggest limitation,” says Gabe Holguin, fire staff officer for the Gila National Forest, when asked about the biggest limitations in fuel treatment programs.

So, for many land management units, wildfire could become the preferred alternative for achieving landscape fuel treatment goals.

Ecological Impacts

“Getting more fire back into the ecosystem should restore it to more historic states where we should see more grass and forbs on the forest floor, which is now covered by pine needles and small trees. Openings in the canopy should help wildlife and all the things that have suffered from the exclusion of fire over the past 100 years,” says Uebel, a fuels specialist on the Kaibab National Forest.

Fire-prone forests across the Southwest such as ponderosa pine are certainly suffering as their fire regimes have shifted far beyond their historic range. In fact, many are so far out of range that it is difficult, if not impossible, to simply reintroduce fire without damaging fundamental aspects of the ecosystem. Ponderosa pine, for example, is adapted to high frequency, low severity fire; in theory, more fire should be good for these forests. However, many ponderosa pine forests are now “dog-hair thickets” of small, dense trees that are vulnerable to high severity fires that can do irreparable damage and result in a shift in species and forest type.

Consequently, as fire managers work to get more fire on the land, they also have to be conscious of ensuring that more fire is not too much of a good thing. Art Gonzales says that fire managers work with other resource specialists to determine how much high severity fire is acceptable in the forest type in which the fire is likely to spread. The potential for high severity fire is considered carefully in the initial decision-making process and in the monitoring that accompanies longer-term fire management.

“We sit down and try to anticipate – what is the fire doing now? What will it be doing tomorrow, what will it be doing a week from now? And if we allow that to burn and provide some resource benefit, what is it going to be doing a month out. If we are in one of those high frequency, low severity types of fuels, then we need to be looking even further out. Is it going to continue to get dry? Is it going to get to the point that we don’t have the upper hand to contain this fire before it starts to create these high severity patches?” says Gonzales.

Joe Reinarz says that the flexibility in managing for multiple objectives in the implementation guidance provides opportunities to minimize the acreage burned by high severity fire.

“On the Horseshoe2 Fire this past year [2011] we knew the fire was going to come down into a canyon that was a world-renowned burning area. We couldn’t stop it because of the terrain, the fire behavior, and the fuels conditions in that area. But, what we could do was manage the fire in such a way to minimize the acreage that would be affected by high severity fire,” says Reinarz. “We set up the

objectives in our burn plans and in our burns that we were going to put on the ground to drape fire over the landscape rather than letting it run down to the bottom and go to the top of the next ridge. That works really well, but you have to know up front that there are going to be areas that you have no choice – it is going to be high severity.”

Opportunities and Challenges

Emily Irwin, program manager for fuels, prescribed fire, and fire ecology for the Forest Service Southwest Region, says that it is still too early to assess the success of the policy in terms of treating fuels and moving forests towards more desired conditions. While forests such as the Coconino and the Kaibab have certainly seen increases in their uses of managed wildfire, others have recently experienced drop-offs in their use of managed wildfire for resource benefit, mainly due to the extreme fire conditions that have plagued the region over the past two years. Eventually though, she feels that the policy will have a big impact.

“The opportunity has never been greater to apply fire to the landscape,” says Irwin, “The policy is now more flexible and more forgiving than it has ever been. Areas in which it would have been impossible to manage fire for resource benefit – in the WUI, areas abutting other agency lands, etc. – are now open. The opportunity is there, but managers still have to take it.”

Irwin says that forest units across the Southwest that have not managed wildfire benefit are now amending forest



Burnout operations on the 2011 Horseshoe2 Fire.
Credit: Kaibab National Forest

management plans in order to expand their ability to do so. “The challenge is going to be the fire environment and the willingness of managers to use wildfire, it is no longer the limitations of policy,” says Irwin.

Over the past couple of years, the fire environment has been especially challenging across the Southwest, with record-breaking fires that have stretched resource capability and limited the ability of managers on most units to take advantage of the policy changes. Smoke impacts are becoming an increasing concern as well as large fires burning across the region that reduce the public’s willingness to tolerate beneficial fire.

One of the biggest challenges may lie in the organization and culture of the land and fire management agencies themselves.

Chris Marks sees definite benefits to policy, but also acknowledges that there

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needs to be more administrative support for managers managing these fires from the forest level all the way to the national level. In addition, he sees the need for a change in culture within forest management.

“There needs to be some accountability for those folks who don’t take the risks as well. Right now, I think we have a management culture where if people don’t take risks and nothing happens, they move on with their career and everything is great. But what they leave behind is a pretty risky situation in terms of fire,” says Marks.

The implementation guidance has only been in place for a short time, but it is already having a significant impact on fire management. The challenges of restoring fire on the landscape are still daunting, but this new policy is a step in the right direction.

The Southwest Fire Science Consortium is a way for managers, scientists, and policymakers to interact and share science in ways that can effectively move new fire science information to management practices.

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