Changing Face of Fire Management in the Northern Rockies

By Josh McDaniel
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When the Pattengail Fire ignited in mid-July of 2007 in the Beaverhead-Deerlodge National Forest in southwestern Montana the initial attack crews responded “at full siren – in full suppression mode,” says David Henson, the assistant fire management officer for the National Forest. “We literally had the ‘stomp into the ground’ mentality,” he adds.

The fire was burning in a roadless wilderness area, and for the first few days, suppression was the mission. However, it soon became apparent that more resources were going to be needed to contain the fire. Those resources never came, and, in fact, the Type II Incident Management Team and the hotshot crew that were initially deployed were pulled to another fire in the region.

July, 2007 was a busy month in the northern Rockies as the national preparedness level jumped from two on the 4th of July to its highest level of five on July 19. It remained at five for six weeks. During this time it seemed like much of Idaho and Montana was ablaze, and massive fires were burning in the Great Basin and into the Cascades and Sierra Mountains on the west coast. Firefighting resources such air tankers, helicopters, and hotshot crews were stretched thin, and were deployed almost solely to fires that were an immediate threat to lives, residential property, structures, and other values.

Fires like the Pattengail, burning in wilderness, were shifted down in priority, and fire managers like Henson were forced to improvise with few resources.

In this case, the only option was to take a long-term approach as a part of a strategy termed Appropriate Management Response (AMR).

What is Appropriate Management Response?

AMR is many things—it is the latest buzzword, it is also a substantive change in wildland fire policy, it is letting a fire burn akin to wildland fire use, it can also be going direct in an aggressive effort at fire suppression.

Still confused? Most people, even those involved in implementing AMR, have a difficult time explaining exactly what AMR is.

AMR is defined by the Interagency Standards for Fire and Fire Aviation Operations as any specific action suitable to meet the fire management unit’s objectives. Actions can range from monitoring to full

suppression. That definition casts a broad net that would capture almost all fires managed in the US. However, speak to enough experienced fire managers about AMR and a few characteristics seem to always come out – AMR involves long-term planning and it involves a greater degree of flexibility than past approaches.

Crew on the way to work spot fires on the 2007 Pattengail Fire, Beaverhead-Deerlodge National Forest. Credit: Willie Cirone

Managers have been managing fires appropriately for decades, and despite the common indictments of the firefighting service for suppressing too many fires, the reality is that fire managers have been given little flexibility by the public, media, policy-makers, or conditions on the ground to fight fires any differently than they always have. We still suppress almost every ignition – somewhere around 97%, just like in the good ole "out by 10 AM" days. However, something has changed. That 3% that escape initial attack have grown into monsters, burning hundreds of thousands more acres than they used to, and costing much more money to manage. The result is that while fire managers are facing longer fire seasons, and a dramatic increase in the size and intensity of the "large fires," they are also experiencing a reduction in resources through declining budgets for federal and state land management agencies.

While proponents of AMR tout the "resource benefits" of taking a less aggressive suppression approach, this is a strategy born out of necessity—larger, more intense fires and fewer resources to pull into the fight.

On the ground, this means that fire managers like David Henson on the Pattengail are forced to develop flexible, long-term plans for managing fires with locally available resources

Henson says that the Pattengail burned for 79 days; it burned until the first snow flew in early October. The fire was managed for a few weeks under Type II teams, and for a short time under a Type I team when the fire was complexed with others nearby, but for the most part the fire was managed using hand crews that were cobbled together on the forest. The crews took some delaying actions—building check lines on the flanks that helped run it into rocky terrain. He says that weather cooperated and they were able to keep the fire out of the front country.

Henson says that the fire managers on the Forest "weren't really that jazzed" about managing the fire long-term, but in hindsight he admits that the fire brought substantial resource benefits. The fire burned through a big, dog-hair thicket of lodgepole pine and thinned it out some. It also opened up some meadows that were being choked. From a fire management standpoint it also broke up the country, putting a big hole in the middle of a homogenous, mixed conifer forest.

Cost savings are always an important consideration in AMR, and one of the driving forces behind the new emphasis. The Pattengail Fire cost about $4.5 million to manage and the final acreage burned was about

15,000 acres. Henson estimates that it would have cost five times that total if the fire would have been approached with a full suppression strategy involving lots of Type I crews and aerial resources.

A study by the Brookings Institution, looking at the costs of large fires in recent years, found that the shift to an AMR approach, resulted in a 25% reduction in costs in comparison to 2006 through the use of more Type II in place of Type I teams, and more longer term suppression strategies such as point protection as opposed to perimeter control.

The 2007 Bridge Fire in Idaho's Clearwater National Forest is a perfect example of cost savings through less aggressive suppression efforts. The fire ignited in late July and was managed till the first snowfall in October. In total, the fire burned about 43,000 acres, but incredibly only cost around $400,000 to manage.

Ground fire during the Bridge Fire, Clearwater National Forest. Credit: Katie Knotek

Like the Pattengail Fire, The Bridge was managed less aggressively out of necessity, says Chad Benson, a District Ranger on the Clearwater National Forest. On the Lolo and Payette National Forests nearby, huge fires were threatening homes and communities and those fires pulled in most of the firefighting resources. The Bridge Fire was burning on the edge of wilderness and was really only threatening timberland.

The fire was managed completely using Type III teams, and the fire went through twelve incident commanders burning from July to October.

"Using AMR on the fire got us thinking long-term about what we wanted to do," says Benson. "Now, we have a picturesque mosaic burn in an ecosystem that hadn't had it in 80 to a 100 year. It burned through old fires even, and created a natural hole in the ecosystem."

He says that at one point there was pressure to pull the pin with a Type II team on the fire when it made some crown runs, but he says that the team had become confident in what they were seeing. "We could have gone hog wild and spent millions to put it out," says Benson. "Because once you commit, there goes the pocketbook."

George Weldon, deputy director for fire, aviation, and air in the Forest Service's Northern Region, points to a comparison of the 2003 and 2007 fire seasons as direct evidence of the effectiveness of AMR in the northern Rockies. "2003 and 2007 were very similar fire seasons in this region," argues Weldon. However, we spent $315 million in 2003, and only $165 million in 2007, and that was with more acres burned under a higher degree of complexity.

Weldon also argues that approaches like AMR and wildland fire use are essential to gaining ground on the hazardous fuels problem. "With climate change, fuel treatments need to be at a different scale to create barriers to catastrophic fires. It might make us feel good to do a 40 acre fuel treatment project, but it doesn't do much good."

Weldon adds that he believes 70 percent of fuel treatment could come through delaying fires like the Bridge and Pattengail and allowing them to do some of the fuels work for us. “You never really put out a fire in a fire-dependent ecosystem,” he says.

Changing Fires and Changing Strategies

In the cases of the Bridge and Pattengail Fires, AMR meant a management strategy similar to Wildland Fire Use—setting management action points (MAPS), taking delaying and checking actions, and establishing a wide maximum manageable area (MMA). However, AMR can involve going direct as well. Sometimes AMR can mean backing off on one flank while going direct on another.

We have built policy around “good fires” and “bad fires,” but it is probably best to luck at fires in terms of what is best for the land. AMR is creating the type of flexibility for managers to get creative in their strategies and tactics.

While there is no doubting the success of the emphasis on AMR in the Northern Rockies, not everyone in the fire management community has cheerfully embraced the shift. A recent report issued by the Wildland Fire Lessons Learned Center uncovered a number of challenges in the shift towards more flexible and patient fire management. First, the confusion over exactly what AMR is has left it open to interpretation, and misunderstandings abound. The report also found that State and local cooperators are not “on board” with AMR and felt that it often conflicted with their mandates on fire management missions. There was also some concern of “information overload” from the new decision-support tools that are being used as a part of the long-term planning associated with AMR. Specifically, many fire managers had difficulty interpreting new tools such as FSPro and RAVAR which deal in probabilities of fire spread and economic impacts and are often more difficult to interpret than older modeling tools.

Weldon feels that these challenges will be overcome as the agencies adjust to the new reality of fire management. He says that this past winter, the agencies worked with training incident commanders on roles and responsibilities for structure protection among federal and state/local collaborators—one of the key sticking points in criticisms of AMR coming from the state and local folks.

There is also beginning to be a discussion of needed adjustments in IMTs—making them operationally and strategically more effective, and this may involve a restructuring of the system. The Lessons Learned report found that local units often found Type 1 teams to be too large for AMR, and immediately after arrival, the teams had to be asked to downsize. The longer duration events require a higher degree of flexibility in expanding and contracting resources. This may require fundamental changes.

Mike Quisenberry, an experienced Type 1 Incident Commander, worked on the Pattengail Fire in 2007. He says that AMR is not new, but that it does involve a lot more patience and flexibility than was common in the past.

“On the Hell’s Half Acre Fire (California 2008) we were thinking about and using AMR principles. The fire was burning in steep, rocky terrain and there were not a lot of opportunities to go direct. But, there was interface all around, so it took a lot of coordination. We went direct in places – line crews had one foot in the black, took fire with them, and we relied aerial lookouts. In other areas, we allowed it to go into natural barriers and roads and then cleaned it up. AMR is really about taking advantages of the opportunities that the landscape presents.”

As fire managers continue to confront longer fire seasons, more extreme fire behavior, and a declining pool of firefighting resources, the need to become flexible and adapt to the situation becomes paramount. At present, AMR seems to provide the most effective model for accomplishing just that.

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The Wildland Fire Lessons Learned Center actively promotes a learning culture for the purpose of enhancing safe and effective work practices in the entire U.S. wildland Fire community. It is located at the National Advanced Fire & Resource Institute in Tucson, Arizona.