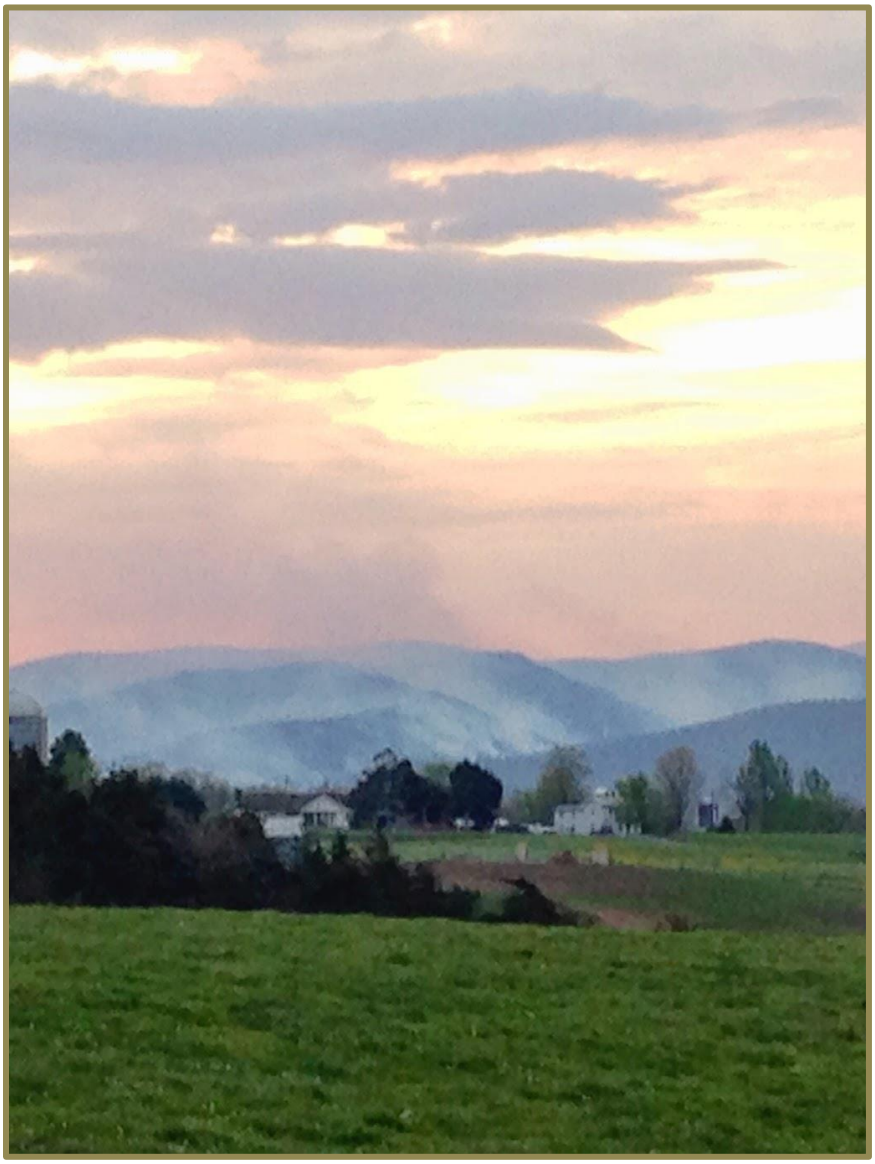

Rocky Mount Fire

Facilitated Learning Analysis

SHENANDOAH NATIONAL PARK

Initial Incident Date: April 16, 2016

"We need to accept and honor the differences in how we fight and manage fire between the different agencies. We are all after the same ultimate goal, which is to keep people safe and communities and infrastructure from being affected. However, we use different tactics and have different risk tolerances for achieving that goal."

Jim Northup, Superintendent
Shenandoah National Park

Contents

I. EXECUTIVE SUMMARY

On April 16, 2016, an unattended campfire is suspected of creeping out of its confines and starting the Rocky Mount Fire in a wilderness area within Shenandoah National Park. Over the next several days, it would grow to become the second largest fire in the history of the Park. Ultimately, the fire would be managed by a Type 1 Incident Management Team, involve a Unified Command with the state of Virginia, and burn 10,326 acres over six days.

When the Rocky Mount Fire first started, there was also a large, complex search and rescue operation being conducted within the Park boundary.

In addition, an early news release (see page 8) referred to the fire being allowed to play as natural a role as possible due to its location. This wording gave some public members the wrong impression of how the Park was managing this fire. As a result, tensions built between the public and the Park about how the fire was being managed.

A Facilitated Learning Analysis (FLA) Team was mobilized on July 10, 2016 to conduct a fire review that would address several areas identified by Shenandoah National Park Superintendent Jim Northup.

Purpose: Identify and Share Lessons
The primary goal of this FLA review is to identify and share the lessons associated with the management of the Rocky Mount Fire. These areas included, but were not limited to:

- Relationships with the interagency cooperators.
- The process of ordering resources.
- The Park's fire management plan, with a focus on the specific elements such as the "Step-Up" plan and the safety for the public and crews.

Leader's Intent – Where Programs Succeed and Where Programs Can Grow
It is important to document and share what contributed to the fire management's outcome and identify processes that went right—as well as where the program has opportunities to improve.

As a part of this review process the FLA Team explored these six key areas:

A. The Park's compliance with National Park Service fire management planning requirements.

B. The adequacy of the Step-Up and Severity Plan and the implementation of these plans, prior to this ignition being discovered.

C. The achievement of each of the Incident Objectives.

D. The resource ordering process, with a focus on timeliness of filling orders and crew transportation.

E. Interagency communication and cooperation, particularly with the Virginia Department of Forestry and the Rockingham County Department of Fire and Rescue.

F. Plans for post-fire rehabilitation and fire effects monitoring. How well is the Park positioned, both pre- and post-fire activity, for rehabilitation and monitoring?

History of the Park

Shenandoah National Park (SHEN) was established in 1935 and dedicated in 1936 by President Franklin Roosevelt *"to the present and future generations of America for the recreation and re-creation which we shall find here."*

SHEN lies astride the crest of the Blue Ridge Mountains in north central Virginia, less than 90 miles southwest of Washington, D.C. The Park stretches about 80 miles north to south and consists of more than 197,000 acres, including nearly 80,000 acres of congressionally designated wilderness.

The Park straddles habitats of both the northern and southern Appalachians and provides habitat for more than 1,750 species, including deer, black bears, and wild turkeys that flourish among the rich growth of an oak-hickory forest. Apple trees, stone foundations, and cemeteries are reminders of the families who once called this area home. Rock outcroppings and steep slopes punctuate the forested habitat.

The Park also has more than 60 mountain peaks with elevations over 3,000 feet, including the highest peak at Hawksbill Mountain (4,051 feet). The Park's lowest level of elevation is at the North Entrance (561 feet).

Skyline Drive, a world famous Park tour road, traverses the length of the Park for 105 miles. Its numerous overlooks provide opportunities for outstanding views of the Shenandoah Valley to the west and the rolling Piedmont to the east. The Park also boasts more than 500 miles of hiking trails, including 101 miles of the popular Appalachian Trail.

Local Residents Recognize the Economic Value of a Park

From the time of his appointment as the first director of the National Park Service, Stephen Mather wished to establish more parks east of the Mississippi. He saw recreational value in having parks closer to the nation's population center and political value in having parks closer to the nation's political center. Thus, Congress designated the Southern Appalachian National Park Committee to search for suitable sites.

A group of business people in the Shenandoah Valley region of Virginia, who recognized the economic value of a national park, formed the basis of a grassroots movement to vie for a national park in their area. Their slogan became: *"Scenery will be Virginia's next cash crop!"*

In 1926, Congress authorized Shenandoah National Park but appropriated no funds. The Commonwealth of Virginia began the arduous task of raising the funds necessary to purchase the property identified to be included in the new park. They soon learned the impossibility of the task. After two boundary reductions and nearly a decade later, 1,081 tracts of land were identified for final inclusion and the necessary funds were held by the Commonwealth.

However, not all landowners were willing sellers. There were hundreds of people living on the land, many were tenants, not owners. A blanket condemnation was passed under "Eminent Domain." The action was challenged through the court system, but the Supreme Court refused to hear the case. A lower court ruling upholding the condemnation held. In late 1935, deeds were delivered to the federal government. The 450 families still living on the land were evicted. Some went to homesteads through the Resettlement Administration, some received assistance from welfare, and others found new homes on their own.

Today, through the sacrifices of many, Shenandoah National Park fulfills the vision of the early planners as a strong economic base in the region's tourism industry.

II. ROCKY MOUNT FIRE NARRATIVE

The Rocky Mount Fire began on April 16, 2016 in a wilderness area of Shenandoah National Park.

Several groups of hikers called 911 and the Park Communications Center to report that an unattended campfire had ignited a wildfire. These people informed Dispatch that the fire had cut off their access to the trail, preventing their retreat from the area.

Resources mobilized from fire and law enforcement within the Park, who were later joined by resources from the Virginia Department of Forestry. Their first priority focused on extracting the public safely from fire area.

These campers were hiked safely out via private land and shuttled to their vehicles when they reached the road. By the time the campers were in a safe location, the fire had grown to 50 acres.

When the Rocky Mount Fire first ignited, its smoke column could be seen from 40 miles away. The fire's location in the hazardous wilderness terrain made direct attack a difficult and dangerous option.

Difficult Terrain, Limited Access for Ground Crews

When the Incident Commander Type 4 (ICT4) first arrived on scene, the fire was approximately 20 acres. Its smoke column could be seen from 40 miles away.

Despite appearing to be just a short distance off Skyline Drive, the wilderness location and difficult terrain made direct attack a difficult and dangerous option. As the ICT4 was getting a good perspective of the Rocky Mount Fire, another smoke was called in 15 miles south of his location, to which an engine was dispatched. While this smoke proved to be a legal burn pile, this report and another smoke spotted just outside the Park boundary diverted resources at a critical time.

Remote locations and safe access challenged firefighters to reach the Rocky Mount Fire. The fire was underslung—creating a safety hazard for constructing line to firefighters.

There was limited access for ground crews to safely and efficiently work. Because the fire started in the wilderness, dozers were not an immediate option for direct attack. Aircraft was available early during the start of the fire, but this was not known by the ICT4. The helicopter was available when the fire first started, but by 1652 that day it was committed to a fire nearby on U.S. Forest Service land. The helicopter was

ordered the next day and remained on the Rocky Mount Fire until it was contained.

Early in the fire, use of mechanical equipment such as chainsaws and leaf blowers were authorized for use in the Park, but not bulldozers. Firefighters therefore worked to contain the wildfire using natural barriers, existing trails, and roads. In addition, Type 1 Crews were ordered to help and Minimum Impact Suppression Tactics (MIST) were implemented wherever possible.

While wildfires are an important natural process in this area of Shenandoah National Park, ensuring firefighter and public safety—including protecting homes—was identified as the top priority for managing this fire.

Search and Rescue Operation Complicates Fire Operation

Thirty miles north of the fire area, a lone vehicle was discovered at a trailhead at 1830. Law enforcement recognized it as belonging to a reported missing female. A search and rescue (SAR) operation quickly ramped up. This operation competed for radio traffic, leaving the fire's ICT4 relying heavily on his cell phone to communicate with Dispatch.

Resources within the Park were being stretched thin between the SAR, the fire, and the need to protect the public recreating in the fire's vicinity. The communications center was asked to manage the radio traffic for emergency use only. This provided limited relief.

Fire Becomes Priority Concern

The Rocky Mount Fire quickly became a priority concern. While it was positioned well within the Park's boundary, Park fire management realized they would exceed local capabilities in a short period of time.

Parts of Skyline Drive and a five-mile stretch of the Appalachian Trail near the fire were closed with support from Park staff. Closing these areas for the safety of the public required extensive effort from multiple divisions within the Park for several days. Concern was expressed for the safety of any hikers who may already be on the Appalachian Trail. A shuttle system was therefore established by the Park to safely commute hikers around the closed section of the Appalachian Trail. This shuttle service remained in place while the fire was a threat to the trail.

While the Rocky Mount Fire was positioned well within Shenandoah National Park's boundary, Park fire management realized they would exceed local capabilities in a short period of time.

Fire Conditions

The Rocky Mount Fire was burning in vegetation dominated by oak and pine, with an understory composed of heath species such as mountain laurel, blueberry, and huckleberry.

Gusty winds and dry conditions existed for several days prior to the fire's outbreak. In addition, the fire was located in an area with fire-adapted pine species that had not received fire in more than 80 years.

While wildfires are an important natural process in this area of Shenandoah National Park, ensuring firefighter and public safety—including protecting homes—was identified as the top priority for managing this fire.

Type 1 Crews Already Committed to Other Fires

On April 16, the day the fire ignited, resource orders for Type 1 Crews were placed along with other resource needs. At this same time, a significant number of large fires were occurring throughout the Southeast. Therefore, all of the immediate/nearby Type 1 Crews were already committed to incidents or were on their mandatory days off.

The Virginia Interagency Coordination Center (VICC) offered a Type 2 Initial Attack contract crew to the Park, but the Park's Fire Dispatch told them they were not needed. The order was sent to the National Interagency Coordination Center (NICC) and filled with two Type 1 Hotshot Crews from the Southwest.

Type 1 IMT Ordered

On the Rocky Mount Fire's second day, it transitioned from a Type 4 to a Type 3 incident. However, by midday, the ICT3 realized that this fire would exceed Type 3 capabilities. A complexity/relative risk analysis was completed by the ICT3, who was also the Park Fire Management Officer (FMO), and other Park staff. This analysis indicated that a Type 2 Incident Management Team (IMT) was needed. Unable to locate and communicate with the Superintendent, who was on-scene at the fire, a decision was made to order an IMT. The order was filled with the Southern Area Type 1 Red Team. Its resources began to travel into Shenandoah National Park as a "short" team. The Red Team's IC and Deputy IC happened to be a few hours' drive away, which facilitated getting the team in place with the best mix of resources that could be identified at the time.

"This fire caused a little friction because of the different tactics that the cooperators wanted to employ."

Mark Musitano, Fire Management Officer
Northeast Regional Office, National Park Service

Press Release Message Sparks Controversy

A public message was released from the Park on Sunday in the form of a press release (see next page). The release was perceived by some of the public and some cooperators as emphasizing the ecological benefits of managing the fire at the expense of active suppression. As the message was read and spread throughout the community, it strained the relationship between the Park and public affected by the fire, as well as the Virginia Department of Forestry (DOF). Friction developed between upper management at the Park and the DOF representative on the fire over the tactics that were being implemented.

Much of the fire activity was located in sensitive areas where fire suppression actions were limited to those that maintain the character of the wilderness. Regarding the use of mechanized equipment in wilderness, Congressional mandate states that *". . . in addition, such measures may be taken as may be necessary in the control of fire, insects, and diseases, subject to such conditions as the Secretary deems desirable"* (Wilderness Act 1964).

Planning Meeting
Also on Sunday, a planning meeting was held with the Superintendent, the Chief Ranger, the Fire Management Officer, and others, including DOF, to discuss the current status of the fire, to select a strategy for managing the fire, and identify a planning area. Firefighter and public safety were [Continued on page 9]

National Park Service
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Shenandoah National Park News Release

Release Date: April 17, 2016, 10:30 a.m.

Rocky Mtn Fire 2016 Forces Trail Closures

Luray, Virginia: A fire was reported yesterday, April 16, 2016, within the south district of Shenandoah National Park. The Rocky Mtn Fire 2016 is currently estimated at 200 acres, burning entirely within the park boundary in designated wilderness. There are three trail closures associated with this fire; Rocky Mount Trail, Gap Run Trail, and Onemile Run Trail. Skyline Drive remains open at this time. No structures are currently threatened by the fire.

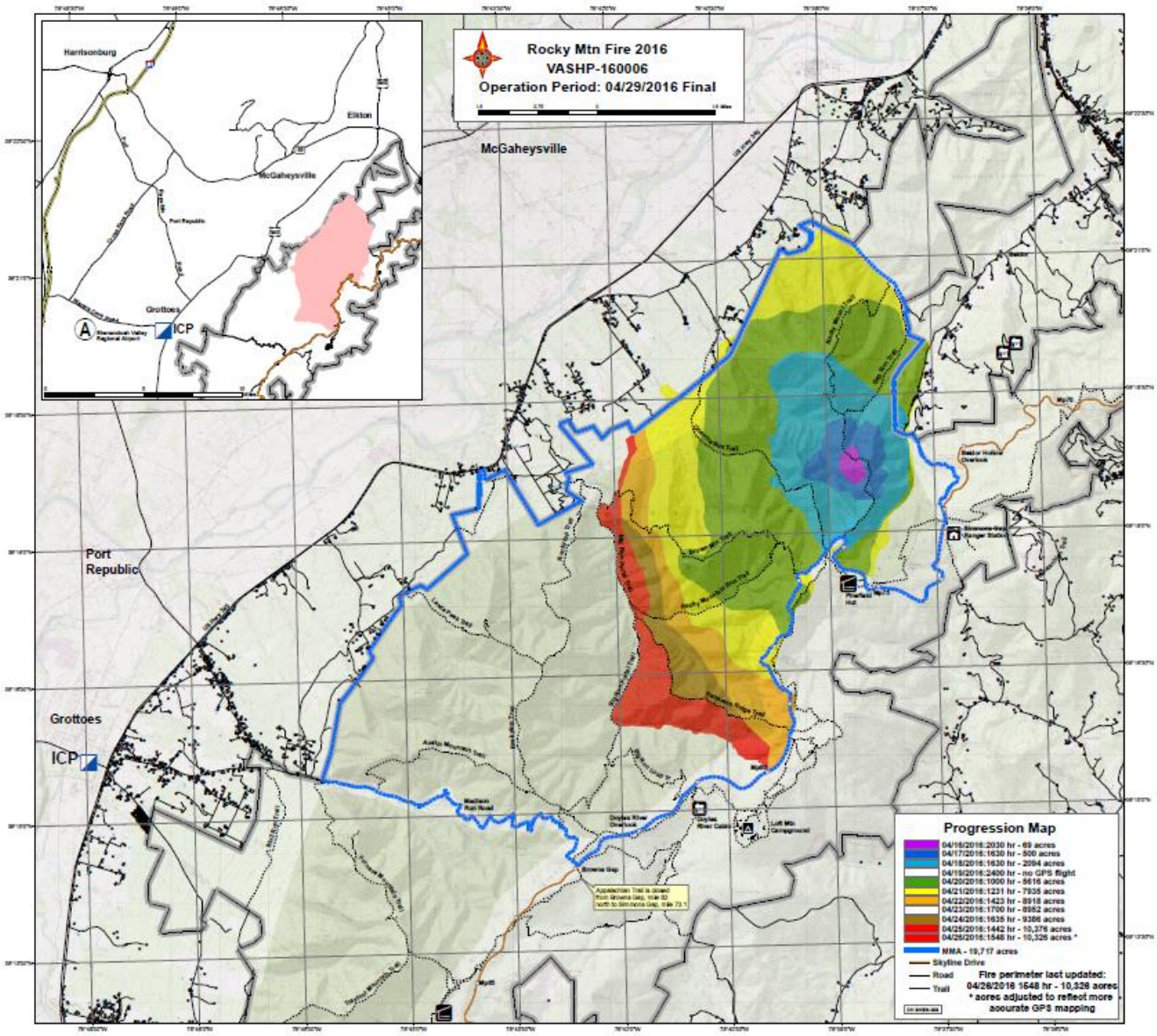
The cause of the fire is under investigation, but is likely human caused. The fire is within the park's Fire Ecology Zone, where fire is allowed to occur to achieve natural resource benefits commensurate with the park's responsibility to protect life and property, and keep the fire within the park boundaries. A "Maximum Management Area" has been defined, and holding actions will be taken as necessary and appropriate to keep the fire within that area, and within the park.

"We are carefully monitoring and actively managing this fire to make sure it is meeting our resource objectives, and will stay in the park. We will reevaluate our strategy and tactics every day and make adjustments as needed. I have great confidence in our fire professionals and appreciate all the assistance we are receiving in managing this fire" stated park superintendent Jim Northup.

The area where the fire is occurring has been closed to public use until further notice. Additional closures may be implemented at any time as needed for visitor and firefighter safety. Please use caution when traveling along Skyline Drive due to potential smoke impacts.

Resources assigned to the fire include personnel from the National Park Service and the Virginia Department of Forestry. Additional firefighters and equipment are en route.

This is the official News Release that was sent out on April 17 that became problematic with misimpressions about how the Park was managing the Rocky Mount Fire.



Rocky Mount Fire Progression Map

[Continued from page 8] identified as the highest priority, with operational goals of keeping the fire within the park and west of Skyline Drive and off private property.

Threat to Private Property

Meanwhile, as the majority of the National Park Service (NPS) personnel struggled to hold the fire west of Skyline Drive, DOF and Park officials became increasingly concerned about the threat to private property on the western side of the fire.

Although the fire was still located inside the Park boundary, the DOF was concerned that the fire would spread onto private property with the potential to impact several residences. State resources began "point protection" of structures (placing suppression resources at these locations) and constructing dozer lines along the fire's western flank on private property, just outside of the Park boundary. On Monday, crews on the fire's western flank established dozer lines around structures to provide point protection.

The dozer line and point protection efforts were instrumental in saving numerous structures along the western edge of the fire.

On Tuesday, April 19, the National Park Service authorized the Virginia Department of Forestry to construct dozer lines within the Park, outside of designated wilderness areas, with a Resource Advisor in attendance. Inside the wilderness, fire crews constructed hand line. A Type 1 Crew assisted in this line construction within the wilderness and supported limited burnouts. The dozer line and point protection efforts were instrumental in saving numerous structures along the western edge of the fire.

Public Perception Problem and Friction Between Agencies

On Tuesday night, a public meeting, organized by the county commissioner and local fire chief, was held. During this meeting, NPS and DOF provided starkly different assessments of the fire and the work being done on the fire. This exacerbated the public's perception that the Park was allowing the fire to burn toward their homes.

In the fire's initial stages, DOF crews on the fire's western flank perceived a lack of cooperative tactical development. Confusion as to who was doing what and communication on the placement and establishment of dozer lines furthered the friction between leadership. By Tuesday, ground resources believed the coordination between agencies on the fire was good, with a federal Division Supervisor assigned to the Division and two arriving during Tuesday's shift. When the Red Team took command of the fire on Wednesday and established a Unified Command, this friction was addressed and resolved.

On Wednesday, crews rushed to secure the lines on both of the fire's flanks. Several small spot fires challenged their efforts. A few spot fires grew to several acres in size on both of the fire's flanks. However, through solid teamwork and improving communications, the fire lines held.

Fire Contained on Friday, April 29

Despite a few of the spot fires continuing to require mop-up days later, by Thursday, April 28, the chief concerns were patrolling and monitoring the fire's west, north, and eastern flanks and developing a plan to secure the southern edge.

A burnout operation conducted on the Monday and Tuesday (April 25-26) led to containment of the Rocky Mount Fire on Friday, April 29, at 10,326 acres.

While the fire did go outside the Park boundary in the Beldor Hollow area and with isolated spot fires, no structures were lost. There were only two injuries on the fire, minor in nature, and no reported accidents.

Through solid teamwork and improving communications, the fire lines held.

FLA Team Ordered

A Facilitated Learning Analysis (FLA) Team was ordered to conduct a large fire review and was mobilized on July 10 to address specific concerns related to incident objectives, including: safety, interagency relationships, and post-fire rehabilitation.

III. ROCKY MOUNT FIRE CHRONOLOGY

Limited burnout operations were conducted on the Rocky Mount Fire on Wednesday, April 20.

SATURDAY, APRIL 16, 2016

The Rocky Mount Fire was discovered by campers and called into the Park Communication Center. Local resources, including cooperators, were dispatched and command of the fire was assumed by an NPS IC. A complexity analysis determined the fire was a Type 3 incident. Two Type 1 Crews were ordered. The fire's final acreage for the day was 69 acres.

SUNDAY, APRIL 17

Fire continued to burn overnight. Planning area size increased. Additional resources were ordered. Initial press release issued by the Park. A new complexity analysis conducted in the evening indicated the need for a Type 2 Incident Management Team. The Type 1 Southern Area Red Team was ordered. Final fire acreage for the day was 500 acres.

MONDAY, APRIL 18

Fire threatened the Beldor Hollow community. The Virginia Department of Forestry (DOF) and County crews worked with incoming federal resources to secure the fire's northern edge. There were numerous spot fires across Skyline Drive. Parts of Skyline Drive were closed to the public. Final fire acreage for the day was 2,094 acres.

TUESDAY, APRIL 19

The Red Team shadowed current resources in preparation for the team transition to take place on Wednesday. Work continued to build and secure line on the fire's northern and western boundaries. Crews picked up numerous spot fires. Fire established itself off the Park in Beldor Hollow. Use of dozers on Park land, excluding wilderness, was approved. A public meeting hosted by County Supervisors was held. No GPS flight taken.

WEDNESDAY, APRIL 20

The Red Team assumed command. Spot fires continued, several across the fire's western boundary. Construction of line along the western boundary continued,

Final acreage for the Rocky Mount Fire on Wednesday, April 20 was 5,616 acres.

including hand line in wilderness. Limited burnouts were conducted. Final fire acreage for the day was 5,616 acres.

THURSDAY, APRIL 21

The fire pushed the western boundary, with crews picking up several large spot fires on private land and across Skyline Drive. Firing operations on the western boundary were completed. There is light chance of precipitation in the forecast. Final fire acreage for the day was 7,935 acres.

FRIDAY, APRIL 22

Governor McAuliffe visited the fire. Very light rainfall (less than 0.25 inches) moderated fire behavior. Only appreciable fire growth was to the southeast. Final fire acreage for the day was 8,918 acres.

TUESDAY, APRIL 26

Final burnout operations occurred, securing the southern fire edge. Final fire acreage for the day was 10,326 acres. No additional fire growth was recorded after this day.

FRIDAY, APRIL 29

The Rocky Mount Fire is declared contained.

Final acreage for the Rocky Mount Fire was 10,326 acres.

IV. MEETING THE FLA REVIEW OBJECTIVES

A. FIRE PROGRAM MANAGEMENT

The current version of the Shenandoah National Park (SHEN) fire management plan was approved and signed on May 10, 2006. National Park Service policy requires the plan to be reviewed and updated annually. The SHEN Fire Management Officer takes the lead on and is responsible for these updates.

The plan underwent a noteworthy update in 2008 following a significant change in NPS fire policy. This entailed changing nomenclature throughout the plan to reflect changes in fire terminology and definitions. These changes were captured in a standalone plan amendment which was approved on December 15, 2008. The next review and update was completed in 2011; the plan has been reviewed and updated annually since that time.

The SHEN fire staff is also in the process of rewriting their fire management plan. This plan will be primarily spatial in nature. The new plan will undergo NEPA compliance through the PEPC (Planning, Environment, and Public Comment) process and will be scoped both internally and externally. It is unknown at this time whether a new Environmental Assessment will be needed or if the prior one will suffice.

In summary, the SHEN fire management plan was found to be current, up to date, and approved for the Step-Up and Severity Plans—the areas that the team was tasked to address. The plan is compliant with NPS fire management planning requirements.

B. THE ADEQUACY OF THE STEP-UP AND SEVERITY PLANS AND IMPLEMENTATION OF THESE PLANS PRIOR TO THE ROCKY MOUNT FIRE

SHEN Fire Staffing, Equipment, and Tour of Duty

The 2016 SHEN fire staff consists of:

- Fire Management Officer (FMO) (permanent full-time).
- Fire Program Management Assistant (FPMA) (permanent full-time).
- Assistant Fire Management Officer (AFMO) (subject-to-furlough).
- Senior Firefighter (subject-to-furlough).
- Lead Firefighter (subject-to-furlough).
- Three Firefighters (seasonal).

During the fire season, fire personnel staff and/or manage:

- Two Type 6 Engines (stationed at Headquarters and Big Meadows).
- Two UTVs with slip-on pumps.
- Two fire caches (located at Headquarters and Big Meadows).

Additionally, fire management pays for—but does not supervise—a Fire Dispatcher. This individual is supervised by the SHEN Dispatch Center Manager.

Beginning in 2016, the following employees are funded by the NPS Northeast Region and are located at SHEN:

- Regional Fire Ecologist.
- Fire Effects Lead.
- Three Fire Effects Crewmembers (seasonal).

During the fire season, the FMO and AFMO work a Monday-Friday 0830-1700 flex schedule. The Senior, Lead, and seasonal firefighters work a Monday-Friday 5-4-9 schedule (9 hours daily Monday-Thursday, 8 hours on Friday, with every other Friday off). Friday off days are rotated between the firefighters to ensure five-day effective staffing during the week.

There are a total of seven "Arduous"-rated Red Carded fire employees who are dedicated to operations and available for initial attack during peak staffing. In practice, one of these is likely to be an IC and assumes all of the staff are available for a fire.

Cluster NPS Units

The SHEN Fire Management Officer additionally provides oversight for the 12 units in the "Mountain to the Sea" cluster of NPS units (see sidebar box on right).

During an average year, SHEN fire management provides Red Cards for approximately 70 non-fire individuals from both SHEN and these cluster units. These additional Red Carded employees form the "fire militia" during times of need. The number of fire militia who are actually available with any consistency is approximately 7-10 on any given day.

Due to lengthy response times, fire militia employees are usually not available for initial attack. There has also been a sharp decline in participation in fire activities by non-fire funded staff, locally and in many regions.

'Mountain to the Sea Cluster' of NPS Units

- Appalachian National Scenic Trail
- Appomattox Court House National Historic Park
- Assateague Island National Seashore
- Booker T. Washington National Monument
- Cedar Creek and Belle Grove National Historical Park
- Colonial National Historic Park
- Fort McHenry National Monument and Historic Shrine and Hampton National Historic Site
- Fredericksburg and Spotsylvania National Military Park
- George Washington Birthplace National Monument and Thomas Stone National Historic Site
- Petersburg National Battlefield
- Fort Monroe National Historic Park
- Blue Ridge Parkway
- Richmond National Battlefield Park and Maggie Walker National Historic Site

SHEN Fire Danger During Spring 2016

The SHEN Fire Danger Step-Up Plan is based on Burning Index (BI) outputs from the National Fire Danger Rating System (NFDRS). Using expertise from a neighboring agency to assist, the Step-Up BI values were updated in October, 2014. (See Table 1 on next page for the Step-Up Plan BI values and associated narratives.)

Beginning March 1, and up to the time of the Rocky Mount Fire, the SHEN Remote Automated Weather Stations (RAWS) started going into "Very High" and "Extreme" fire danger levels.

Fire staffing class reached Level IV a total of 21 times at the Headquarters RAWS and 14 times at the Sawmill RAWS between March 1 and the start of the fire on April 16.

During this same time period, staffing class Level V was reached four times at the Headquarters RAWS and 22 times at the Sawmill RAWS. The SHEN FMO activated a Step-Up account on March 22 to allow fire staff to work additional hours. This was usually in the form of extended hours during the week and occasional 6th day staffing. In addition to the Step-Up account, fire personnel occasionally worked extra hours on specific project dollars.

The FMO reports that the true SHEN fire danger on the ground is driven by BI values *combined* with wind events. In other words, dry fuel by itself without wind, may not necessarily result in very high or extreme fire danger in all cases. Therefore, the normal protocol for implementing Step-Up staffing is to be in staffing class IV or above, combined with a forecasted wind event. Burning Index values alone will not necessarily trigger a staffing Step-Up.

Table 1. Burning Index ranges (NFDRS version 1988, fuel model G). Fuel Model G used for Fall, Winter, Spring, and Summer fire danger predictions.

Step-up actions for Shenandoah National Park Staffing Classes.

Staffing Class	Burning Index	Fire Danger	Actions to be Taken
I	0 – 12	Low	• Normal Park operations
II	13 – 20	Moderate	• Normal Park operations
III	21 – 33	High	• Fire qualified personnel are available for initial attack. • If a high visitation period is determined to increase the risk of human-caused ignitions, upgrade to Staffing Class IV, if deemed necessary
IV	34 – 42	Very High	• May extend regular initial attack and key management personnel to 6- or 7-day work week if necessary to provide qualified staff coverage • May extend daily tours of duty initial attack and key management personnel if necessary to provide burning period coverage • May initiate additional road patrols for prevention and detection as needed • May initiate precautionary fire hazard bulletins via local public media, Park bulletin boards, and public contacts • Activate emergency Step-up accounts as necessary
V	43+	Extreme	• Close selected campgrounds, picnic sites and other areas of the Park, if necessary • Consider prohibiting fires and open flames in the Park • Activate emergency Step-up accounts

Revised 10-15-2014 SI

Step-Up Plan Trigger Points

The Step-up plan above identifies BI as the primary trigger for step up. However, the FMO uses personal institutional knowledge and the following parameters for when to activate the Step-Up Plan:

- A wind event predicted in the forecast.

- A Fire Weather Watch or Red Flag Warning predicted in the forecast.
- A combination of:
  - 10-hour fuel moisture at 7 percent or lower.
  - Relative humidity at 30 percent or lower.
  - Winds sustained at 20 miles per hour.

These parameters are used in conjunction with the daily Burning Index values, both predicted and observed.

Would an Activated Step-Up Plan Have Changed the Outcome of the Rocky Mount Fire?

On April 16 when the Rocky Mount Fire was first reported, all SHEN operational fire resources were on a day off. If six- or seven-day staffing had been authorized through a Step-Up account, there could have been up to five firefighters on duty (this includes supervision), most likely staffing a Type 6 Engine.

The fire community recognizes that looking back on an event with hindsight bias is counterfactual. However, when asked the above question, the SHEN FMO was confident and advised that:

> ***"Even if we'd had people on that day, by the time they get near the fire it's already pushing 50 acres. What are five people going to do on a 50-acre fire with no road access? It wouldn't have made a difference in our decision-making or on the ultimate outcome. Yeah, we may have been able to evacuate hikers sooner, but fighting the actual fire, no way."***

During March and April, the SHEN FMO believed that the fire program was following their Step-Up Plan and that the plan was working well for the Park. When looking back on the month that led up to the start of the Rocky Mount Fire, the FMO reflected:

> ***"After a while when you're in extreme fire danger day after day, fire crews start to normalize it. It (the fire danger) starts losing its significance when we focus on the day-to-day forecasts and lose sight of the cumulative effect of multiple high fire danger days in a row."***

[For a complete Lessons Learned discussion, see this FLA's "Lessons Learned and Observations" section.]

THE FIRE SEVERITY PLAN

The SHEN fire program has submitted funding request packages for severity funding in the past. Past criteria for considering a severity request submission have included:

- Indicators of long-term drought through both:
  - High Keetch-Byram Drought Index (KBDI) values.
  - Low 1,000-hour fuel moisture (gathered through NFDRS).
- Local fire activity in the State of Virginia.
- Resource draw down.

It should be noted that these criteria are based on institutional knowledge and are not written down either in the fire management plan or in other documents.

Despite being in an extended period where fire danger ratings ranged from "Very High" to "Extreme", the spring of 2016 was not significantly out of the ordinary. Fuels were definitely dry. There had been several days with no precipitation. March, in particular, was a dry month with only 1.05 inches of rain recorded at both RAWS located in the Park. Normal March rainfall for this area is 3.10 inches. Light rain fell off and on at the beginning of April, including 0.32 and 0.42 inches at the two RAWS stations on April 7.

In the month preceding the Rocky Mount Fire, the highest KBDI value was 168. This was recorded on April 15, one day before the fire. Values on KBDI maps need to reach 300 before going into the first level of drought.

In the month preceding the Rocky Mount Fire, the State of Virginia Department of Forestry reported 195 wildland fires. In contrast, during the same period in 2015, 296 wildland fires were reported.

Both the FMO and AFMO (who has worked locally for the U.S. Forest Service for 15 years prior to coming to SHEN one year ago) believed that the Park did not meet criteria for submitting a severity funding request.

C. ACHIEVEMENT OF EACH OF THE INCIDENT OBJECTIVES

The objectives for the Rocky Mount Fire outlined in the Delegation of Authority provided by Shenandoah National Park to the Type 1 Incident Management Team (Red Team/Incident Commander Mike Dueitt) and each of the objective's results:

1. *Maintain firefighter safety by adhering to the 10 Standard Fire Fighting Orders, 18 Watch-out Situations, LCES, 2:1 work rest ratio.*

   The Rocky Mount Fire had a tremendous safety record given the terrain. The only reported injuries included a knee injury and an ankle injury. However, several reports of tick bites occurred, and although ticks were mentioned during briefings and in Incident Action Plans, some of the participants acknowledge that the seriousness of ticks and tick-borne illnesses could have been better communicated.

2. *Provide for public safety, protection of private property, and critical infrastructure.*

   Through cooperative efforts between Rockingham County Fire and Rescue, the Virginia Department of Forestry, and the National Park Service, there was no damage or loss of structures or critical infrastructure. Burnout operations occurred off of the Park boundary in the Beldor Hollow area and fire "slop-overs" occurred near the Rocky Bar, Simmons Gap, and Sunshine Valley communities. These areas were contained as quickly as possible.

3. *Keep the fire within the Park boundary, west of the Skyline Drive and north of the Madison Run fire road.*

   At the time the delegation was signed, firing operations had already occurred on private land in the Beldor Hollow area. Spot fires and fire slop-overs occurred in the Rocky Barr, Simmons Gap, Sunshine Valley Communities, and east of Skyline Drive. Fire crews were successful in containing all of these without significant impact to the communities.

4. *Maintain continuous communication with the Virginia Department of Forestry, Rockingham County Emergency Services, and other firefighting organizations surrounding this incident.*

   The Virginia Department of Forestry and Rockingham County were heavily involved with suppression efforts and worked with the Incident Management Team and Shenandoah National Park to suppress the fire. Both The Virginia Department of Forestry and Rockingham County were very complimentary of the communication provided by the Red Team.

> ***"If we didn't have the State resources there to help us out we could have been in a lot worse situation. We just didn't have the resources to address the threat to the private property and Park."***
>
> **Matt Way, Type 4 Incident Commander, and Shenandoah National Park AFMO**

5. *Utilize Public Information Officers (PIO) to communicate the suppression and management of the fire to Park neighbors, stakeholders, and cooperators through media interviews and neighbor contacts.*

   Although initial efforts to share information with the general public, stakeholders, and cooperators had mixed results, the addition of more PIOs once the Red Team arrived allowed for a more effective and efficient public communication strategy.

6. *Provide protection for wilderness character by minimizing long-term evidence of suppression efforts.*

   The use of chainsaws and leaf blowers were allowed within the designated wilderness area, but had a minimal impact on the character of the wilderness. Fire crews did an excellent job of utilizing Minimum Impact Suppression Tactics (MIST).

Successes

Structure Protection

Given the terrain, fire weather, and significant wildland-urban interface concerns, no structures were damaged or lost.

Cooperator Assistance in Protecting Private Property

The Virginia Department of Forestry and Rockingham County Fire and Rescue took great initiative in recognizing current and predicted fire spread and implementing the appropriate actions to ensure the protection of private property.

Relationship between Shenandoah National Park and the Virginia Department of Forestry

At the local level, the cooperative relationship between the Shenandoah National Park and the Virginia Department of Forestry is excellent. Although they sometimes have a different philosophy regarding fire management strategies, they are often able to work through these differences.

Lessons Learned from Participants

- Too many objectives were provided to the Red Team in the Delegation of Authority. Several of the objectives/team guidance could have been combined or streamlined.
- The Shenandoah National Park has a small fire staff. To supplement staffing needs, they should consider ordering a severity package when long-term fire danger increases.
- On all fires within Shenandoah National Park, the Virginia Department of Forestry and local county fire and rescue should be continue to be notified of any fire with the potential to impact the park's boundary. Memories differ about how early in the initial planning process cooperators were engaged in a meaningful way, but most participant s agreed that the earlier they are involved, the clearer communication will be all around. This will help ensure the development of more effective strategy and tactics, the allocation of resources, and a better overall cooperative effort.

D. THE RESOURCE ORDERING PROCESS – WITH A FOCUS ON THE TIMELINESS OF FILLING ORDERS AND CREW TRANSPORTATION

Shenandoah National Park operates as a fourth tier dispatch center. Approximately three years ago, the Virginia Interagency Coordination Center (VICC) was moved from Charlottesville, VA to Roanoke, VA—within the U.S. Forest Service Supervisor's Office. This move created some confusion between the Park fire program and the Coordination Center for several reasons.

Efforts, as documented in WildCAD, show that resources were offered by VICC to SHEN early on in the discovery of the Rocky Mount Fire. The PatRick Type 2 Initial Attack Crew (Contract T2IA crew) was offered on April 16—but Fire Dispatch at SHEN said they did not want them. Per WildCAD records:

> *04/16/2016 1514 "Called [Fire Dispatch]… from Shenandoah NP and asked for any update. [SHEN Disptch] said it was a big fire but resources have not arrived. She asked about resources avl* [available]*, told her we could send PatRick crew and she said they did not want them."*

The ICT4 and FMO were unaware that this resource had been offered and that Fire Dispatch had turned down the crew. This PatRick Crew was approximately 40 minutes from the Rocky Mount Fire's location.

Confusion Regarding Permissions for Flying or Driving

Resource orders were placed as early as April 16 for Type 1 Crews with no special instructions included in ROSS regarding mode of transportation. It was requested that they fly with authority to chase with the buggies, however the resource order did not specify that they could not drive at all.

When flights were difficult to obtain, it was recognized that crews could not arrive by air until Monday night. If they drove their own vehicles, crews could arrive Tuesday. Therefore, the Southern Area Coordination Center (SACC) gave authorization for those crews to drive.

This is documented in ROSS, including efforts from SACC to contact SHEN to confirm this was authorized. Due to a lack of special instructions, SACC had the autonomy to start the crews driving to SHEN.

Three more Type 1 crews were later ordered with special instructions included in the ROSS order that they were not to fly. However, they were also not authorized to rent 4x4s or SUVs—which creates challenges for transporting crew gear and tools on the fireline.

The FMO (who was also functioning as the ICT3 and Duty Officer) was unaware that the first crews ordered were given permission, via the entries into ROSS by NPS Fire Dispatch, to drive.

Due to several concurrent starts across the Southeast area, the three type-1 crews that were in the area we committed to other assignments. One of the other local Type 1 Crews, the Augusta Interagency Hotshots, were on mandatory R&R days and not available until Monday, April 18. (The fire started on April 16.) When an early morning call came in from Virginia DOF to the SHEN FMO regarding threatened structures, he immediately mobilized the Augusta Hotshots. They responded and were en route by 0231 hours, located just 30 minutes away from the fire. The Type 1 Crews that drove arrived on the Tuesday, April 19. The crews that flew arrived by Friday, April 22.

Once the Type 1 Incident Management Team (Southern Area Red Team) was in place, resource ordering was moved to an expanded Dispatch Center within the Incident Command Post (ICP) instead of within the Park.

This caused some friction with the Park Fire Dispatcher, who did not relocate to the ICP.

By the time the Southern Area Red Team took command of the fire, resources were mostly on scene or en route.

Successes

- Resources did show up en mass despite travel times. The Virginia Interagency Coordination Center (VICC) did a good job of supporting Shenandoah National Park during this incident.
- The Park was well supported by the Virginia Department of Forestry.
- The Type 1 Incident Management Team arrived in a timely manner.
- The NPS is a signatory to the State of Virginia Master Agreement, which allows agencies to assist each other for the first 48 hours of an incident, buying them time to “ramp-up” on an incident that burns for multiple burn periods.

Lessons Learned from Participants

- It is always a challenge to mobilize and receive resources quickly in the south, southeast and eastern areas of the nation. Most resources are more heavily concentrated in the west, creating a lag in response time for “big” orders such as hotshot crews. Make use of the immediate resources until desired resources can arrive on scene.
- Fire Dispatcher should not have the autonomy to make decisions on accepting or turning away resources. FMO and/or Center Manager cannot completely disengage from the process regardless of how busy things get—a Duty Officer or similar position could also fill this position.
- The Park’s Dispatch Center should continue to work on and strengthen its relationship with VICC.
- Coordination Centers tend to stay open for western fire season, but don’t always for local fires in the south and east. Local units should anticipate this to confirm that their coordination center will be open for their ordering needs.

E. INTERAGENCY COMMUNICATION AND COOPERATION, PARTICULARY WITH THE VIRGINIA DEPARTMENT OF FORESTRY AND ROCKINGHAM COUNTY FIRE AND RESCUE

The Virginia Department of Forestry (DOF) and Rockingham County Fire and Rescue (RCFR) were identified as cooperating agencies for the Rocky Mount Fire. DOF was included in a Unified Command structure once the Type 1 Red Team took over the incident.

DOF was notified through Rockingham County Dispatch during the afternoon of April 16 of a fire start on Shenandoah National Park. DOF staff was on scene with the Incident Commander when the incident was sized-up.

The Shenandoah National Park FMO notified a local DOF contact who was on the fire during the morning of April 17 to confirm that he was aware that the fire could encroach onto the Park boundary. Although RCFR was not notified directly by the Park, they were kept aware of the fire's progress through conversations with DOF. While DOF was not actively engaged in the initial planning process, the agency was in attendance at all of the Rocky Mount Fire briefings.

Actions Taken to Protect Structures When Fire Crosses onto Private Land

Although one of the incident objectives was to keep the fire within the Park boundaries, it crossed over onto private land in the Beldor Hollow Community on April 18. Both DOF and RCFR had to take immediate action to protect structures through line construction and limited burnouts. They were engaged with Park officials to ensure firefighter safety, and some federal resources were also on hand.

Different perspectives were presented to the FLA Team as to whether these actions were a part of the operational plan for the day or if they were independent actions undertaken primarily by State and County resources.

If not for the initiative of DOF and RCFR firefighters on this [west] side of the fire, structures may have been lost due to increased fire behavior that occurred on April 20.

Protecting Communities on April 19

Another issue concerned the protection of the Simmons Gap, Sunshine Valley, and Rocky Bar communities along the fire's western edge on April 19.

DOF officials believed that not enough emphasis was given to protecting private property on the west side of the fire. This agency initiated line construction on private land without direction from the Type 3 Team or the Park. At midday, however, DOF was given permission by the Park Superintendent to construct dozer line within the Park boundary, but not within designated wilderness. If not for the initiative of DOF and RCFR firefighters on this side of the fire, structures may have been lost due to increased fire behavior that occurred on April 20.

Unified Command Results in a More Consolidated Suppression Strategy

Once the Red Team took command, a Unified Command was established between DOF and the Park to manage the incident. This resulted in a more consolidated suppression strategy and both agencies worked well to ensure the protection of private property and the general public. RCFR provided a facility for the ICP and was able to contract suppression resources through the Red Team to use for structure protection. RCFR personnel were invaluable in helping the IMT with local contacts, logistical needs, and community support.

"I didn't want to plow private land. The fire didn't start on private land. Why are we going to plow private land? We should be plowing on the Park."

Jeremy Holloway, Chief
Rockingham County Fire and Rescue

Overall, the cooperative relationship with DOF, RCFR, and the Park is very good. However, there are differences in fire management philosophy between these organizations, which can sometimes cause friction.

DOF and RCFC are, understandably, more focused on suppression-oriented strategies, as many of their fires have wildland-urban interface issues. While structure protection is also paramount at the Park, the threat to structures is often not imminent, which, along with 80,000 acres of designated wilderness, allows the Park to manage risk—and, thus, the Rocky Mount Fire—differently.

Rockingham County Fire and Rescue personnel were invaluable in helping the IMT with local contacts, logistical needs, and community support.

Differing Perspectives

The decision to not expose firefighters to direct attack when the fire was first discovered and not to fight it more aggressively during its first few days made sense from the Park's perspective—but not from DOF or RCFC's perspective.

The three agencies did agree on the incident's most important objectives which included keeping the communities on the fire's western flank safe. In addition, the Park was also paying attention to keeping the fire's eastern flank secure to prevent it from threatening communities in another valley and county.

Communication and Coordination among Cooperators – Regarding Information

Primary cooperators for the Rocky Mount Fire included the Virginia Department of Forestry (DOF) and Rockingham County Fire and Rescue. Other agencies and organizations, ranging from Appalachian Trail clubs, other local governments, and local media and conservation organizations, were also involved. However, due to the fire's location, many of these groups were not overly active with the fire.

From the Rocky Mount Fire's beginning, all cooperators who had been identified were included in all information releases about the fire. The National Park Service had a well-established Facebook page with more than 250,000 followers as well as email distribution software (MailChimp) that had a pre-established distribution list of more than 200 recipients, including media and key cooperators within the community.

Although several people referred to a "Unified Command" in the early days of the fire, there was no reference to "unified information or messaging." Information was handled by National Park Service Public Information Officers with NPS messages until management of the fire transitioned to the Red Team.

Until the Red Team took over, there was no Unified Command, so messaging continued to be NPS-oriented. This is not unusual or inappropriate with a fire of this nature, as local resources are often stretched extremely thin. Appropriate Virginia Department of Forestry and Rockingham County Fire and Rescue staff were on the distribution list for all informational releases and, if these agencies had additional information to provide, they had the appropriate contact information.

Fire Information

Information for the Rocky Mount Fire was handled by on-site NPS PIOs from Sunday morning, April 17, until management of the fire transitioned to the Type 1 Southern Area Red Team on the morning of April 20.

Four Public Information Officers (PIO)—one Public Affairs Officer (PAO), one Public Information Officer Type 2 Trainee (PIO2[t]), one Public Information Officer Trainee (PIOF[t]), and one Public Information Officer Type 1 (PIO1/retired) were available locally, however, only the PAO and PIO2(t) were ordered to report as PIOs for the fire on April 17.

During the fire's early activity, there was a high-profile search and rescue operation (SAR) in progress within the Park. Due to this SAR, planned "Park Week" activities, personnel changes, and on-going routine work in the Park, there was at least minor confusion about who was "in charge" of Fire Information.

Ultimately, except for the daily or twice-daily releases, the PIO2(t) was assigned as the Fire PIO and the PAO assisted with both fire and SAR information. Once the Red Team arrived, the PIO2(t) integrated with the Red Team and moved to the ICP in Grottes. The PAO remained at headquarters to staff the only working information phone line (covering both SAR and the fire). Coordination of information was difficult due to normal technical difficulties common during the initial days of any fire (limited phones, poor cell service, spotty Internet, Information Center set-up, etc.).

Another impediment to success was a lack of available NPS laptops and cell phones. Initial news releases and InciWeb listed the PIO2(t) and PAO's NPS email addresses. Due to lack of laptops and cell phones, however, they were unable to monitor those email accounts regularly. No laptops or cell phones have been issued to those employees who serve in PIO roles within Shenandoah National Park.

Initial Rocky Mount Fire News Release Proved to be Problematic

After the morning briefing on April 17, the Park Superintendent sent an email to key staff providing specific "key messages"—with direction on how to use these messages for a press release—as well as advice on how to answer specific questions from the public.

Shortly after receiving this email, the PAO wrote and distributed the initial news release for the Rocky Mount Fire. The release emphasized that the fire was within the Park's "Fire Ecology Zone" where fire is "allowed to occur to achieve natural resource benefits." While the release also made reference to "protecting life and property," the resulting news coverage indicated that news outlets and readers focused on the former, more emphasized message. Several resulting articles accused the Park of "botching" the suppression effort.

Facebook Comments and Questions Weren't Addressed in Timely Manner

During the Rocky Mount Fire's first few days, the Park Interpretive/Social Media staffer (and PIOFt) granted the NPS PIOs (and eventually members of the Red Team) access to the official Park Facebook page for the purpose of sharing fire information.

It is unclear who posted initial fire information. However, it is clear that few of the comments and questions posted by the public were managed/acknowledged during those first few days. Again, there was confusion on who was responsible for what. Therefore, there were multiple negative comments and questions posted by the public. This caused a "snowball effect" with others from the public chiming-in with their views and opinions.

Needless to say, the messages in the initial press release and comments heard at the public meeting provided fuel and Facebook provided the forum to air these opinions and comments. In the world of social media, more than one day is an "eternity."

By all accounts, once the Red Team arrived (even the short team), issues began to be resolved. No new major issues concerning fire information occurred. Because the Red Team was ordered as a "short," it arrived with only one PIO. Therefore, delays in the fire's information process resulted from the standard ordering time restraints. Until these orders were filled, NPS PIOs saved the day.

"We'd have been stronger out of the gate if we'd brought the whole team along from the start—especially the trainees who missed the inbriefing and initial events."

Mike Dueitt, Incident Commander, Southern Area Blue Team – commenting on how the initial order for a "short team" proved to be problematic

Successes

- Existing skill sets among NPS staff seem adequate to perform all fire information functions at the Type 4 and 3 levels.
- The willingness of NPS employees to assist was admirable.
- By all appearances, all NPS employees we eager to assist in any area needed, but they were also respectful of "staying in their lanes" and not interfering. Everyone seemed to recognize that these were busy and stressful times.
- Overall, NPS staff seems to view the Park Superintendent as a great communicator and one who provides overall support and encouragement to the staff at all levels. The trust level here appears to be high.
- There was timely recognition of the need to order an Incident Management Team.
- The Park had an already-established Facebook page with 250,000 followers and an established MailChimp account with more than 200 email addresses on its distribution list. This provided an immediate means to distribute fire information.
- As the fire developed, the Park realized it had gotten behind in public perception. Consequently, the Superintendent published an Open Letter that was widely distributed to the communities surrounding the park, clarifying how the fire was being managed. While the initial press release did create some confusion – and the park got behind the power curve with the message – many

people have praised the Open Letter as really helping the park recover from that initial perception about how the fire was being managed.

Lessons Learned from Participants

- There was a lack of needed equipment to handle information functions (cell phones, laptops, portable printers, etc.).
- Radio interoperability is an issue faced across the country when multiple partners work incidents. In this case, working on one shared simplex made this particularly difficult. Assistance from region or a radio specialist in assisting the park with how to handle this situation may minimize these issues in the future.
- PIOs who were available to assist did not feel empowered to provide that assistance or to offer comments when none had been requested. (For Example: Responding to the "key messages" email.)
- There is a lack of pre-season planning for information functions. A coordination meeting early in the season that includes the FMO, Interpretation staff, and others who may be providing information to the public or to teams on incidents could help clarify roles and responsibilities.
- Initial message provided by the Park Superintendent (page 8) led some to believe that the park was focused on the fire's resource benefits at the expense of active suppression of the fire. This resulted in a negative public response and overall misunderstanding of management priorities, which required crucial time and energy to address/repair. Standard initial releases should provide facts about the fire, basic contact information, and priority objectives.
- Internal communications within the Park, both during the fire and other times, are not perceived as being timely or effective. This caused problems, especially during the fire when the Park Interpretive Ranger who was administering the Park's social media sites was not in the loop on trail closures and other major decisions that should have been high priority for communicating to the public.
- Fire posts on the Park Facebook page quickly overwhelmed other postings on the page. Park staff limited fire Facebook posts to two per day to maintain balance on the Facebook page. This limited fire information staff from fully covering many of the human-interest aspects of the fire.

F. PLANS FOR POST-FIRE REHABILITATION AND FIRE EFFECTS MONITORING

How well is the Park positioned, both pre- and post-fire activities, for rehabilitation and monitoring?

According to the Park Ecologist, the primary resource concerns associated with the Rocky Mount Fire are:

- Non-native invasive species spread—in particular, waxy leaf basket grass (*Oplismenus undulatifolius*).
- Cultural resource sites being accidentally impacted by line construction.
- Boundary monument markers being susceptible to dozer line construction.
- Head fire avoidance in stands of eastern hemlock (*Tsuga Canadensis*).

Fortunately, minimal resource damage was sustained during the suppression operations. This can be attributed by having Resource Advisors (READ) assigned to the fire, both with the Type 3 organization and Incident Management Team. At the height of the Rocky Mount Fire there were seven READs assigned. The

Lead READ tried to have at least one READ attached to every Division on the fire. He also tried to have READs voice their concerns at the daily Division break out-briefings.

After receiving Park Superintendent approval, dozer line was constructed in the park for a total of 3.03 miles. None of the dozer line occurred in designated wilderness. (Dozers additionally constructed 3.44 miles of line on private land.) Hand line construction totaled 5.18 miles in the Park with 1.35 miles occurring in wilderness. Additionally, 23 miles of hiking trails were damaged by the fire.

Park staff prepared a Resource Advisor Report and Burned Area Emergency Response (BAER) Plan which was approved by the Park Superintendent on May 6. The BAER plan was approved by the Northeast Regional Director on May 11. It should be noted that this plan covers only NPS land. Although the rehab plan indicates that the Virginia Department of Forestry is responsible for rehabbing private land, the NPS has been performing this with local resources.

The Park Ecologist considers the Rocky Mount Fire to be "by and large a success story" in regards to resource protection. Much of this can be attributed to the line presence of the Resource Advisors throughout the fire during suppression operations.

The Park staff started the BAER plan in late April when the fire was still in patrol status. This helped to position the Park for being out in front of the rehab planning curve. Fortunately, because resource damage was minimal, it wasn't necessary to order a specialized BAER Team.

Fire rehab has progressed in spite of significant rainfall in May. These rehab components consist of:

- Dozer line repair.
- Hazard tree assessment and abatement along trails.
- Hand line rehabilitation.
- Non-native invasive species survey and treatment.

While the fireline rehab and repair was expected to be completed by the end of July, other rehab components will need to compete for money over the longer term.

The Park Ecologist considers the Rocky Mount Fire to be "by and large a success story" in regards to resource protection. Much of this can be attributed to the line presence of the Resource Advisors throughout the fire during suppression operations.

[For a complete Lessons Learned discussion, see the next "Lessons Learned and Observations" section.]

Fire Effects Monitoring

Regional Fire Effects staff had not yet entered on duty when the Rocky Mount Fire occurred. A Fire Effects Lead and two Fire Effects Seasonal Monitors have begun work on assessing the Rocky Mount Fire's effects.

The Park has received a preliminary post-burn severity classification via satellite from the U.S. Geological Survey (USGS). This data will be "ground-truthed" through reading composite burn index (CBI) plots.

The Great Smokies National Park (GRSM) Fire Ecologist and crew came to Shenandoah National Park the week of July 18 to train the Northeast Region Fire Effects Crew on CBI ground-truthing.

Additional longer-term fire effects monitoring options are still being explored.

V. LESSONS LEARNED AND OBSERVATIONS

1. Lessons Learned by Incident Participants

"The models we use to project staffing take into account a number of things, but they are not sensitive to other complexities, like the number of fire departments you work with, the number of counties bordering the Park, or what the response time is for significant help to arrive on an incident."

Jim Northup, Superintendent
Shenandoah National Park

A. Changes to the Fire Step-Up Plan and potential 7-day staffing

After the Rocky Mount Fire, the Shenandoah National Park Fire Management Officer believes that it is appropriate to revisit the narrative component of the Fire Step-Up Plan. Current language does not require that the given action be taken when fire danger reaches a certain threshold. Specifically, the FMO wants to:

- Strengthen the narrative under "Actions to be Taken" to clear-up ambiguity and move toward a standard operating procedure.
- Capture the institutional knowledge which could trigger plan activation, most likely in the paragraph preceding Table 1.
- Consider adding a Step-Up trigger point related to the number of consecutive days (for example: 20 or more) that the Park has been in either "Very High" or "Extreme" fire danger.

The Park Assistant Fire Management Officer also believes that it is wise to look at things differently in the future. Specific items that he believes should be considered:

- Look at the feasibility of changing the fire staff tours of duty next year to provide for 7-day coverage during peak fire season. One idea would be to change days off to Friday-Saturday and Sunday-Monday to provide staffing through the weekends. While this may not have altered the outcome of the Rocky Mount Fire, it could make a difference on future fires which are smaller, burning less robustly, and/or have good roadside access.
- Try to pull Red Carded personnel in from cluster units to assist with Step-Up staffing.

B. Fire Severity Criteria

During an interview with the Park's FMO regarding trigger points for submitting a fire severity package, it became apparent that the criteria were based on institutional knowledge. The FMO recognized the need to put these trigger points into writing, most likely into a section of the next fire management plan.

C. Resource Advisor Interaction with the Incident Management Team

Despite the overall success of protecting resources during the Rocky Mount Fire, the Park Ecologist identified several lessons learned, including:

- Assign an "Office READ" to the Incident Command Post for the purpose of communicating with the incident management team and getting a daily READ message into the Incident Action Plan.

- It was observed that READ messages, either from the Incident Action Plan or Division Supervisor, frequently did not get passed down to the actual fire crews. This could be mitigated if READs spoke with Division Supervisors prior to the breakout to request a short timeslot to voice resource concerns to all supervisors on the Division.

Burnout operation on the Rocky Mount Fire.
National Park Service photo by R. Baysinger.

There were specific resource concerns when fire crews began prepping the Big Run drainage for a control line. The Park Ecologist wanted to note that the incident management team did an outstanding job implementing mitigation measures to minimize impacts. These include:

- Ordering biodegradable chainsaw bar oil for crews to use in Big Run. This was made available at the ICP Supply Unit.
- Wrapping window screen around suction hose foot valves to avoid brook trout fry getting sucked into portable pumps.
- Ceasing to use stock ponds for helicopter drops and switching instead to the Shenandoah River.

D. Superintendent's Meeting

During the Rocky Mount Fire, it was the Park Superintendent's desire to have a private meeting each morning at 0800 hours with key Park staff. The intent of this meeting was for the Superintendent to be briefed and updated so the fire could be discussed confidentially.

On April 18, representatives from other agencies were inadvertently invited to this meeting. This took the Superintendent by surprise. There were tense interagency discussions concerning tactics which the Superintendent felt he was not prepared for, and was not in line with that meeting's original intent.

The Superintendent identified this event as a lesson learned. In the future, it will be clearly communicated that Superintendent briefings will be held with a few key Park staff and be separate from interagency, planning, or other meetings that are required.

E. Communicating Land Management Objectives-Before the Fire Starts

In discussing some of the public and cooperator's response to the initial press release, one participant noted that:

> "The lesson learned here is that the federal land management agencies, including the National Park Service—and specifically Shenandoah National Park—need to do a better job of educating the public about how fire is managed in large natural areas with complex fire management programs (including different types of [management] zones) involving suppression, managing for multiple objectives and prescribing burning.
>
> I believe that if we had done a better job of that with our cooperators and our neighbors before the fire, they would have better understood what the 'fire ecology zone' meant—and know that we fully understand our responsibility to keep all Park fires within the Park, and to protect structures and private property."

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2. Observations by the FLA Team

A. General Observations

Ordering a Duty Officer

- Ordering a Duty Officer to cover additional incidents and help the ICT3 (who was also the FMO) would have reduced the multi-tasking and allowed the FMO to focus on his role of ICT3. This request should have been made to the Regional Office for their support in filling that role during the incident.

Trigger Points

- WFDSS and projection mapping are a method for setting action/trigger points for discussions—both internally and with cooperators. For instance, establishing a trail or ridge that, if the fire crossed it, would result in the Superintendent allowing the use of dozers in the Park could have alleviated some of the friction regarding the use of dozers early in the incident.

Engage with the Virginia Interagency Coordination Center

- Engage with the Virginia Interagency Coordination Center (VICC). Provide a support role with NPS staff when possible, or when VICC has Expanded Dispatch in place. If the current Fire Dispatch position stays at SHEN, it may be beneficial for the FMO to play an active role in the supervision of that position to ensure SOPs are in place and followed and that the fire program is getting the necessary support.

Perceived Conflicting Priorities

- Much of the interagency friction during the Rocky Mount Fire resulted from perceived conflicting priorities between the Park and some of the cooperators who did not believe the Park was making a sufficient effort to keep the fire within the Park boundaries. When a fire is being managed for multiple objectives, it is important to clearly communicate everything that is being done to achieve all objectives. Focusing messages on our partners' concerns—in this case on what was being done to protect the communities along the fire's western flank—could make those messages more effective.

B. Updating Burning Index Values

The Shenandoah National Park's fire staff concluded at some point prior to 2014 that their current Step-Up plan was in need of updating. Rather than try to go through the process themselves, the fire staff brought in an expert from a local U.S. Fish and Wildlife unit to assist. This individual helped develop new Burning Index values and break-off points between fire danger levels and staffing classes.

The FLA Team believes that this was an excellent move on the part of the Park's fire staff.

This type of thinking is in line with that of a "High Reliability Organization" (HRO), in that it seeks to "defer to expertise." "Deference to Expertise" is one of the five tenets of an HRO.

C. 1,000-Hour Fuel Moisture Sampling

Monitoring long-term drought is a critical component to any fire management program. The Shenandoah National Park's fire program could benefit from considering setting up permanent 1,000-hour fuel moisture sampling plots.

The FLA Team observed that one such plot in both the north and south districts, sampled every two weeks, would provide the Park's fire staff real-time Park-specific data. This intelligence would help determine whether Step-Up activation or severity requests are warranted.

D. Potential Benefit from an Increase in Staffing—from Either Step-Up or Severity

Throughout the FLA interview process, the Park's primary fire overhead staff (Fire Management Officer, Assistant Fire Management Office, and Fire Program Management Assistant) all maintained that—even with extra staffing from either Step-Up or severity—the outcome of the Rocky Mount Fire would have been the same.

The FLA Team conducted a site visit on July 12. Given the nature of the fuels, terrain, location of the fire in wilderness, lack of road access, observed fire severity, lack of values at risk, and initial reported size, the FLA Team agreed with the Park fire staff. Even with an extra 3-10 individuals, a direct attack at night on the fire would have had little chance of success and a high potential for an injury to occur.

However, we should also remember that on a future fire burning under different circumstances, an extra 3-10 individuals could make the difference between an initial attack success or a Type 3 or higher incident.

Evening monitoring of the Rocky Mount Fire. National Park Service photo by A. Williams.

E. KBDI versus 'Days Since Rain'

As stated earlier, prior to the Rocky Mount Fire, the highest Keetch-Byram Drought Index value was 168 on April 15. In Virginia, KDBI values are considered an indicator of long-term drought rather than actual fuel conditions.

In addition to actual moisture content, a good indicator of fuel condition is the number of days since rain. The Rocky Mount Fire was a graphic example of how observed fire behavior was much greater than what would have been expected from the current KBDI values.

The Park's fire program may want to consider formally adding "days since rain" as part of their indicators of fuel condition. Based on correlating days since rain (4 and 8 days per the Park's RAWS) prior to the Rocky Mount Fire and observed fire behavior, trigger points could be developed which could have assisted in Step-Up staffing and/or severity requests.

F. Park Ecologist Having Operational Fire Qualifications

The Park Ecologist currently maintains a Red Card with Crew Boss and Incident Commander Type 4 qualifications. A key member of his staff is also Red Carded at the Firefighter Type 1 level. The FLA Team wants to commend these individuals for maintaining these operational qualifications.

Having fire experience gives Resource Advisors (READ) a measure of independence on fires where they can safely work directly with fire crews. For example, the Park Ecologist worked four days with dozers on the Rocky Mount Fire during critical prep operations. Fire experience also gives READs a certain amount of "street credibility" with suppression crews, who are not always open to hearing resource protection concerns.

G. Differences in Perspective

There are some fundamental differences in mission statements between the National Park Service and surrounding agencies regarding fire management. Some of the differences are policy related, some are philosophical.

These differences led to some of the tension between the Park and other agencies during the Rocky Mount Fire. Part of this was the perception that the Park "was doing nothing" while other agencies were "the only ones doing any firefighting."

During the initial suppression operations, particularly on the fire's west flank, there was minimal to no National Park Service presence. This reinforced the public's perception that the NPS was letting the fire burn and other agencies were protecting their homes.

> ***"The public is complaining to who they see—and along the fire's western boundary that was the Department of Forestry."***
>
> **John Miller, Director of Resource Protection**
> **Virginia Department of Forestry**

In the future, it is critical that the NPS have a presence in this type of scenario. Even just one fire, ranger, or PIO vehicle with the NPS arrowhead on its side will go a long way toward improving public relations. This is especially important where there is a long simmering animosity toward the Park from its neighbors.

H. Interagency Training Scenario Exercise

The Rocky Mount Fire presents a great opportunity to further improve the working relationship between Shenandoah National Park and its neighboring agencies. Frequently during the FLA Team's interview process, it came to light that more pre-season planning and/or meetings may have reduced friction during this incident.

The Park should consider facilitating an interagency training exercise involving a complex fire scenario. Such an exercise could be based on a simulated fire of comparable complexity to the Rocky Mount Fire.

The exercise could include personnel from the Senior Firefighter all the way to the Agency Administrator level. It could involve sand tables or other props, including IAPs, maps, simulated perimeter growth, Murphy's Law what-ifs, etc.

At least one member of the FLA Team has participated in an exercise of this nature which was highly successful in opening dialogs and working through potential sources of friction in a safe, non-fire environment.

I. Interagency After Action Review

On May 17, Park staff conducted an After Action Review (AAR) on the Rocky Mount Fire. The value of this AAR can be determined by talking to the actual participants.

During the FLA Team's interview process, it became very apparent that there were multiple perspectives of this AAR event. Often times, perspectives were 180 degrees opposite of each other. Different perspectives were frequently aligned with different agencies.

Given the level of friction between agencies during the Rocky Mount Fire, the FLA Team believes it would have been invaluable for the Park, State, and County representatives to have participated an interagency AAR. This same procedure should have been repeated with the various Dispatch offices.

Interagency AARs would have been a great opportunity for the participants to discuss successes and identify areas of improvement while the information and perceptions were still fresh. Many lessons learned could have been captured and it would have been a strong, positive step forward toward the future.

J. What is the Point of Diminishing Returns with Reviews?

Although the incident took place in April and a review team was contacted in April, for a variety of reasons the review was not able to take place until July. With the western fire season and obligations on both the Park and the team's side, work on the FLA went on until late November. One of the advantages of the FLA process is that it captures fresh memories of the participants, giving the review as complete a picture as possible of the incident, and getting it into the hands of both the participants and others as quickly as possible to facilitate their learning opportunities. How does time affect our memories, as individuals and as a group? How does it affect the review process? Is there a point at which it no longer makes sense to conduct a review by outside resources? If the FLA process relies heavily on memories, and memories have been corrupted by time, what is the value of the FLA? What is the point of diminishing returns with reviews?

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