USDA

United States Department of Agriculture

Narrative Timeline of the Pacific Northwest 2015 Fire Season

The First Creek Fire burns towards residences

Structure protection on the Okanogan Complex

Firefighter on the Wolverine Fire

FOREST SERVICE U.S. DEPARTMENT OF AGRICULTURE

for the greatest good

pacific NORTHWEST REGION

Canyon Creek Complex from Indian Creek Road

In Memory of
Richard Wheeler, Andrew Zajac, and Tom Zbyszewski

Members of Engine 642 on the Methow Ranger District, Okanogan-Wenatchee National Forest

Who lost their lives during Initial Attack Operations on the Twisp River Fire on August 19, 2015

Richard Wheeler
Age 31

Andrew Zajac
Age 26

Tom Zbyszewski
Age 20

Report Purpose

This report provides a narrative timeline of key events that occurred during the 2015 wildfire season across the U.S. Forest Service's Pacific Northwest Region. National context is provided to explain when and why firefighting resources were limited—as well as the impacts of those limitations. Preparedness and other preseason activities which increased firefighting capabilities within the Pacific Northwest Region are also outlined. In addition, the coordination and cooperation among the various wildland fire agencies within the Region is detailed and the resultant improved outcomes are described.

Contents

Interactive Story Journal

An Interactive Story Journal is also available to accompany this report.

This story journal provides summary information from the main report as well as interactive web maps, photos, videos, 3D views for some fires as well as time-enabled fire progression maps for selected fire incidents.

You can view the story journal by scanning the code (on the left) or going to:

http://arcg.is/1MWXG4A

While we mourn the loss of our firefighters and are dismayed at the losses of residences and other important values, there is no doubt that the many actions taken in advance of the 2015 fire season and during this severe fire season by the interagency wildland fire agencies—at the Regional, State and Local levels—protected vast numbers of citizens and prevented huge losses of property and natural resources.

Structure Protection Task Force assembles on the Okanogan Complex on August 28. Photo by Jeremiah Mushen.

An Important Note to Our Readers

The information in this report was gathered through a variety of means.

Information was obtained from the following sources:

> *The National Wildfire Coordinating Group's "InciWeb" incident information system, Incident Status Summary (ICS) 209s, Situation Reports, Incident Action Plans, Dispatch logs, National Wildfire Coordinating Group (NWCG) reports, the Wildland Fire Decision Support System (WFDSS), Northwest Coordination Center Multi-Agency Coordination (MAC) decision logs, Resource Ordering and Status System (ROSS) reports, media (including social media), as well as several other sources. (For more information on the various technologies that were used to support the 2015 fires that also helped to inform this report, see Appendix C – The Use of Technology in Support of the 2015 Fires.) Northwest Coordination Center staff members were instrumental in collecting this information and providing overall perspectives.*

Also critical to the information in this report were the various personal interviews conducted with Incident Commanders, fire leadership, firefighters, Agency Administrators, and others. It must be recognized that not all personal interviews were consistent with each other. This report's authors did their best to reconcile differences while striving to objectively honor the perspective of each individual source.

Left: An Incident Meteorologist assists fire managers on the Canyon Creek Complex.
Right: Interagency Hotshot Crew members work on the Stouts Creek Fire.

Photo of the Grizzly Bear Complex Fire taken from the community of Troy in Oregon's Wallowa County.

I. Summary

A. Most Severe Fire Season in Modern History

The 2015 fire season in the Pacific Northwest was the most severe in modern history from a variety of standpoints. Oregon and Washington experienced more than 3,800 wildfires (almost 2,300 in Oregon and more than 1,500 in Washington) that burned more than 1,600,000 acres (more than 630,000 acres in Oregon and more than 1,000,000 acres in Washington)—including 1,325 fires representing 507,000 acres on U.S. Forest Service lands (information as of September 30, 2015).

Initial Attack was successful in rapidly containing all but about 119 of these fires. This response represents an almost 97 percent Initial Attack success rate.

Approximately 50 of these fire escapes occurred during a ten-day period in mid-August when numerous Large Fires (a wildfire of 100 acres or more in timber or 300 acres or more in grass/sage) were already burning in the Pacific Northwest. During this time, the Northern Rockies and Northern California were also experiencing unusually high numbers of wildfires. This situation limited the ability to rapidly obtain Initial Attack reinforcements as well as almost all types of firefighting resources needed for Large Fires.

Initial Attack was successful in rapidly containing all but about 119 of these fires. This response represents an almost 97 percent Initial Attack success rate.

Fires on National Forest Lands Given Lower Priority for Resources

During the peak of the fire season, wildfires occurring on national forest lands were often given the lowest priority for resources because they were farthest from communities and represented lower threats to life. Some of these fires grew to become large and ultimately burned onto private lands. When this occurred, it was due to severe fire weather (strong winds, high temperature, and low humidity) which caused all fires to burn more intensely and rapidly.

Protecting Specific High-Value Locations

Those fires with few firefighting resources often grew very large very quickly. Because of the insufficient resources available to construct fire lines around these rapidly growing fires, the standard strategy of full perimeter containment was often abandoned in favor of "point protection". "Point protection" consisted of placing engines and crews at specific high-value locations (individual or clusters of structures, power and communication infrastructure, etc.), building fire line around these locations or implementing hose lays to prevent fire from damaging these locations as it burned past them. Only later, when additional resources became available, would full perimeter containment lines be constructed.

B. Tragedy Strikes

Tragedy struck on August 19 when three U.S. Forest Service firefighters were killed while attacking a fire on private lands near Twisp, Washington.

During this severe fire season, approximately 675 structures were lost. While well over 16,000 structures were threatened, most were saved from loss by aggressive suppression actions. The Pacific Northwest Region was listed as the first or second priority for national resources on the National Interagency Coordination Center's Situation Report for 82 days (of 122) between June 1 and September 30. During the entire month of August, the Pacific Northwest Region was ranked Number #1 (18 days) or Number #2 (13 days) in the National Priority.

At the peak of the season's fire activity, the following resources were assigned to wildfires burning in the Region: 1 Area Command, 21 Incident Management Teams, and more than 11,450 personnel. Firefighters were mobilized to attack the Pacific Northwest Region's fires from most of the 50 states as well as Canada, Australia, and New Zealand. In addition, the Oregon National Guard, Washington National Guard, and the United States Army were all dispatched to help with suppression efforts here.

C. 2015 Fire Season Milestones

- In August, to help support Washington State's fires, the Emergency Support Function 4 (ESF4) was activated by the Federal Emergency Management Agency (FEMA).
- The Emergency Conflagration Act—that authorizes the Oregon Office of the State Fire Marshal to mobilize structural firefighters and equipment to assist local resources battling fires—was invoked by the Governor of Oregon on July 30 in response to the Stouts Creek Fire, on August 13 for the Cornet Fire and Windy Ridge Fires, on August 14 for the Canyon Creek Fire, and on August 20 for the Grizzly Bear Complex.
- The Washington State Fire Service Mobilization Plan is implemented to provide personnel, equipment, and other logistical resources from around the state when a wildland fire or other emergency exceeds the capacity of local jurisdictions. In mid-August, the Chief of the Washington State Patrol authorized such a state-declared mobilization on the Carpenter Road Fire, the Kettle Complex, and the Okanogan Complex.
- The Pacific Northwest Region had the highest priority in the nation for firefighting resources during these dates: July 25 and 26, August 14-31, and September 8-13.
- The Pacific Northwest Region was under a Preparedness Level 5 (the highest, most severe level) from August 13 through September 4.
- The greatest number of uncontained fires occurred on August 18: 25 Large Fires totaling 822,512 acres in the Pacific Northwest Region (105 Large Fires totaling 2.2 million acres nationally).
- Oregon and Washington National Guard supported firefighting efforts throughout August and into September, mobilizing a medevac extraction helicopter, heavy helicopters to perform bucket work, and hundreds of line personnel organized into 20-person crews deployed on fires in both states.
- In August, one half-battalion of active military personnel—approximately 200 people organized into 20-person crews and support personnel, including a medical unit—mobilized to the Kaniksu Complex in northeast Washington.
- A total of 68 fire line management personnel from New Zealand and Australia were assigned to support Large Fire suppression in the Pacific Northwest. This mobilization helped to ensure that the U.S. Forest Service and other agencies were able to maintain Initial Attack capability.
- Estimates indicate that more than $560 million was spent suppressing fires in the Pacific Northwest Region in 2015.

Members of the Oregon National Guard help suppression efforts on the Canyon Creek Complex on August 27. Photo by Lori Iverson, U.S. Fish and Wildlife Service.

D. 2015 Wildfire Management Successes

Several key points regarding the management of wildfires during the severe 2015 fire season in the Pacific Northwest deserve special recognition.

Outstanding Interagency Cooperation

There was outstanding interagency cooperation among the nine agencies (Bureau of Land Management, U.S. Forest Service, National Park Service, Bureau of Indian Affairs, U.S. Fish and Wildlife Service, Oregon Department of Forestry, Washington State Department of Natural Resources, and Oregon and Washington's State Fire Marshal offices) responsible for wildland fire protection and management. These agencies provided an excellent foundation for Initial Attack and Large Fire management.

Tribal Nations Support

Tribal Nations provided many resources in support of wildfire management on their lands and adjacent lands.

Excellent International Cooperation and Coordination

Several fires spanned the Canadian-U.S. boundary. Cooperation and coordination between the two countries was excellent.

Local Fire District Support

Local fire districts—comprised mostly of volunteers—provided substantial resources, especially in Initial and Extended Attack, as well as assisting with evacuations. This local support contributed to the overall success that occurred during the 2015 fire season.

Significant Contribution from Law Enforcement

Law enforcement at both the local and state levels contributed significantly in keeping the public out of harm's way through timely evacuations and closures.

Early Recognition of Fire Season's Potential Severity

Early recognition of the potential severity of the 2015 fire season proved to be instrumental in developing strategies for augmenting local Initial Attack resources and interagency partnering which improved the successes that occurred during this fire season.

Preseason Actions and Collaborations

The actions and activities that were implemented prior to the onset of the 2015 fire season were significant. These key collaborations included: preseason planning, simulations, and public outreach.

Prepositioning Firefighting Resources

The early decision to bring additional firefighting resources into the Region prior to the onset of heavy fire activity proved to be an essential component to successful fire suppression.

The Multi-Agency Coordination Group and Strategic Adjustment of Priorities

Early establishment of the Multi-Agency Coordination (MAC) Group and the strategic adjustment of priorities as the demand for firefighting resources exceeded supply proved to be another management action that contributed to success.

Actions Taken Prior to and During the 2015 Fire Season Protected Citizens and Prevented Huge Losses

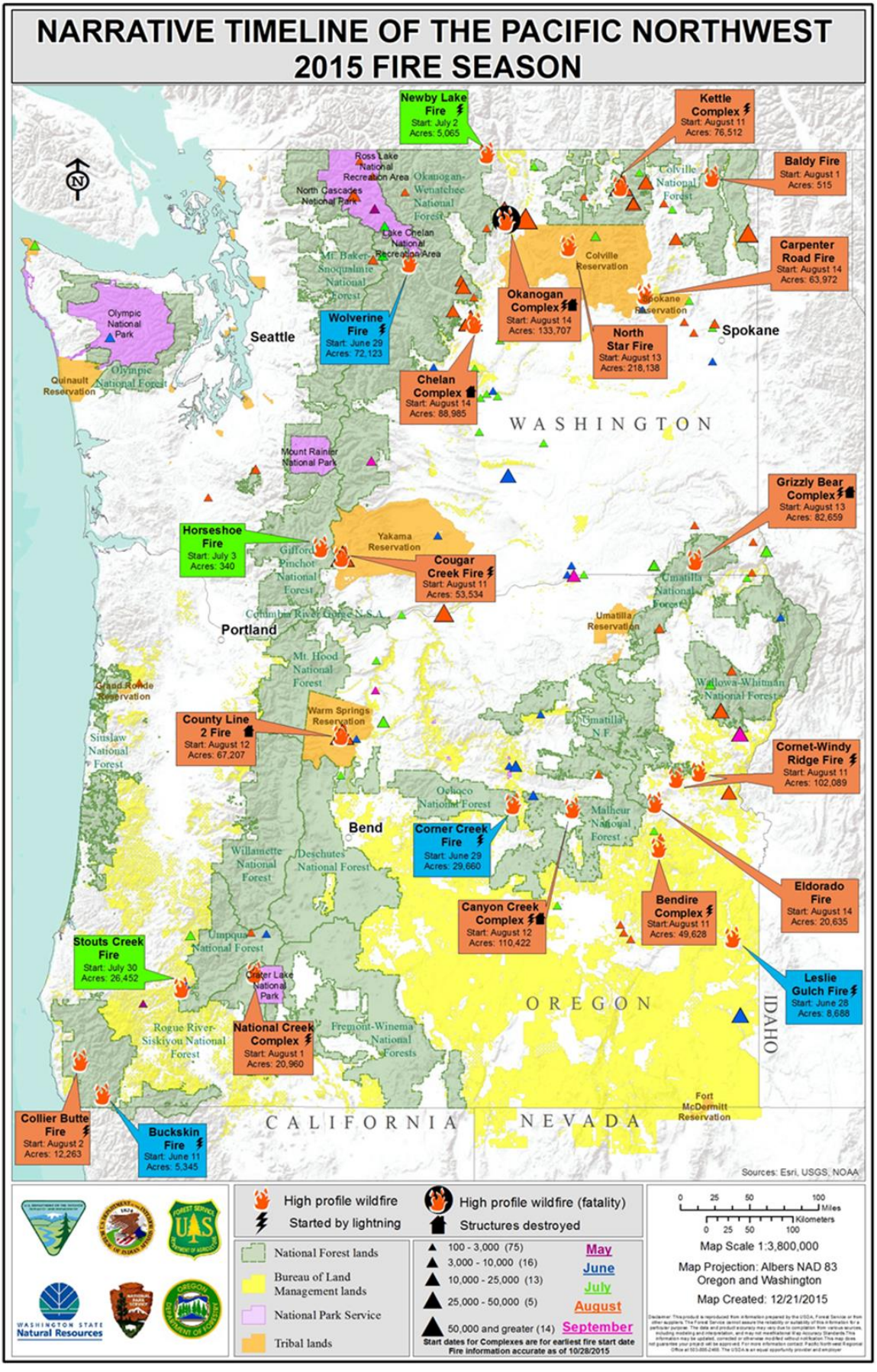
While we mourn the loss of our firefighters and are dismayed at the losses of residences and other important values, there is no doubt that the many actions taken in advance of the 2015 fire season and during this severe fire season by the interagency wildland fire agencies—at the Regional, State and Local levels—protected vast numbers of citizens and prevented huge losses of property and natural resources.

Residents' Input

Firefighters on the Canyon Creek Complex receive thanks and support from community members.

Photos by Gert Zoutendijk, Oregon State Fire Marshal's Office.

For Interactive Regional Map: http://arcg.is/1ToKx78



Narrative Timeline of the Pacific Northwest 2015 Fire Season

II. Preseason: Actions Taken from January through May

January through March

- Predictive Services Forecasts and actual conditions
  - Snow pack and precipitation.
- Local Interagency Preseason Meetings. Each local Forest, Bureau of Land Management Unit, and State Unit conducted preseason meetings to better prepare for the upcoming fire season.
- Planning for the Fire Season:

Date: January 28, 2015

Subject: Chief's Letter of Intent – 2015 Fire Management

To: Regional Foresters, Station Directors, Area Director, IITF Director and Deputy Chiefs

We anticipate 2015 to be another challenging year to manage fire. It is our intention to successfully manage fire on the landscape, while considering land management objectives, the Forest Service mission and the Federal Fire Policy.

We fully evaluate risks with a broad perspective for both planned and unplanned ignitions while considering the people we serve and landscapes we protect. In accordance with the goals of the Cohesive Strategy, we seek to create resilient landscapes, fire-adapted communities and provide safe, efficient wildfire response. This connects with our five broad focus areas of Safety: Inclusiveness, Ecological Restoration, Fire, and Communities.

Success continues to be defined as safely achieving reasonable objectives with the least firefighter exposure necessary, while enhancing stakeholder support for our management efforts. The fundamental principles we continue to embrace for success:

- Everyone, every day, returns home safely.
- Safety is not just a consideration in how we do our work; it is the essence of how we make decisions.
- We assess, analyze, communicate, and share risk before, during, and after incidents.
- We do not accept unnecessary risk or transfer it to our partners or future generations.
- Every fire is managed with strategy and tactical decisions driven by the probability of success to meet reasonable objectives, and receives a safe, effective, and efficient response.
- Before, during, and after every fire, we enhance relationships.
- We create a respectful work environment for everyone involved in fire.
- We learn from every experience and use that knowledge to improve.

Implementing the Forest Service 2015 Wildland Fire Risk Management Protocols will help us achieve success. We have outstanding employees who support wildland fire management. I am encouraged and committed to the continuous improvements we are making; these improvements will provide value to the people we serve. Thank you for your commitment and service towards making 2015 a safe and successful fire season.

/s/ Thomas L. Tidwell
THOMAS L. TIDWELL
Chief

- Extreme fire activity simulation:

Simulation Exercise

Preparing to Respond to a 'Worst-Case' Scenario

In February, the U.S. Forest Service Pacific Northwest Regional office hosted a workshop designed to simulate extremely high-volume fire activity.

This simulation exercise engaged Pacific Northwest Region executives and Pacific Northwest Wildfire Coordinating Group (PNWCG) representatives, along with their staffs, in a realistic multi-agency coordination training that replicated fire conditions over and above what was experienced during the 2014 fire season.

This simulation's goal was to improve: Communications, Decision-Making on incident prioritization, and Interagency Coordination and Cooperation necessary for effective management of multiple Large Fire scenarios.

Participating in this exercise carried the additional benefit of gaining an increased understanding of all Pacific Northwest agencies' missions and priorities. In addition, the simulation helped model the high-stress environment when extreme burning conditions and critical resource shortages simultaneously exist over a prolonged period of time.

Federal, State, and Local Agency Administrators and Fire Managers believe that such "real world" practicing helps everyone perform better when the actual situations occur.

April through May

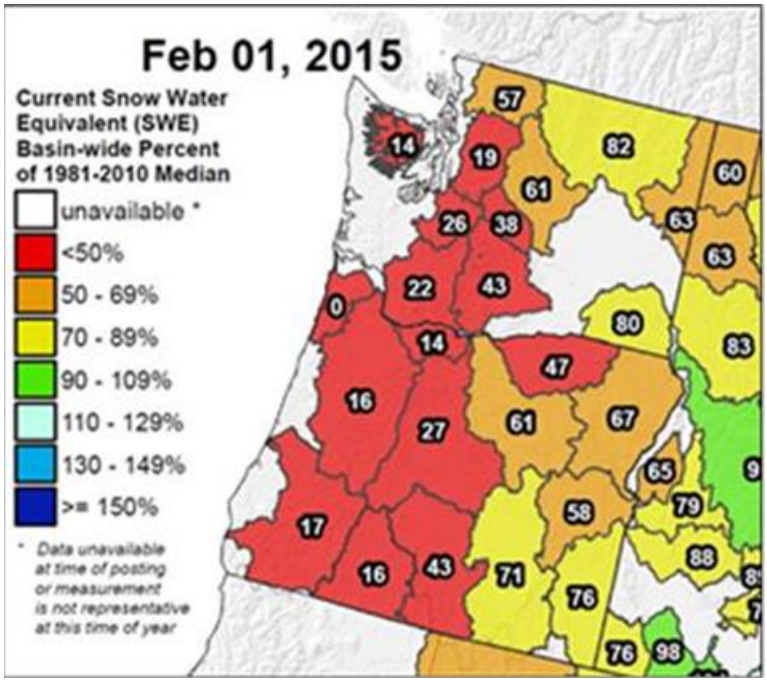
- Predictive Services Update and actual conditions.
  - Long-term outlook (central Washington highlighted); continued low levels of precipitation with high temperatures.
- Some National Forests cancelled planned prescribed burns due to the severity of fire conditions.
- Regional-level preparedness reviews on all National Forests and Bureau of Land Management Units.

III. The 2015 Fire Season

A. Introduction

The 2015 fire season in the Pacific Northwest was predicted to be very severe as early as February when snowpack levels were reviewed throughout the region and found to be only a fraction of normal.

During the winter and spring, the interagency wildland fire community convened numerous meetings and workshops to enhance readiness for the expected higher volume of fire activity.



This graphic displays the amount of water contained within the snowpack (Snow Water Equivalent).

The graphic was prepared by the U.S. Forest Service/Natural Resources Conservation Service's National Water and Climate Center in Portland, Oregon. http://www.wcc.nrcs.usda.gov

Long-Term Drought

The major predisposing factor for predicting a severe fire season was the continuation of a long-term drought. The unusually dry dead fuels, as well as very low moisture content in live fuels, contributed to greater fire intensity and rates of spread.

Early season fires grew larger and lasted longer than under less severe conditions. The Peavine Fire occurred in Oregon's Douglas County in May. This fire was discovered on May 5 and burned approximately 150 acres before it was contained the following week.

Prioritizing Fires and Distributing Resources

When demand exceeds supply of firefighting resources (Engines, Crews, Air Tankers, Helicopters, etc.) interagency groups (Multi-Agency Coordination Groups known as "MACs") are convened to prioritize fires and distribute resources as they become available. ("MAC Group" is a generalized term which describes the functions and activities of representatives of involved agencies and jurisdictions who come together to make decisions regarding the prioritizing of incidents and the sharing and use of critical resources. The MAC organization is not a part of the on-scene Incident Command System and is not involved in developing incident strategy or tactics.)

In most cases, Initial Attack is prioritized over fires which have already escaped initial attack. Local units reserve a portion of their total firefighting force (drawdown level) to be available for the Initial Attack of new fires. This Initial Attack priority seeks to prevent new fire starts from becoming Large Fires and, thus, encumbering even more firefighting resources.

Priority for sending resources to Large Fires first considers threats to life. In addition, the MAC Groups consider threats to other values such as communities, telecommunication infrastructure, individual residences, power transmission lines, and other values important to the local community, the region, and the nation. In implementing this process, the MAC Groups agree on priorities for resource allocation.

B. Weather

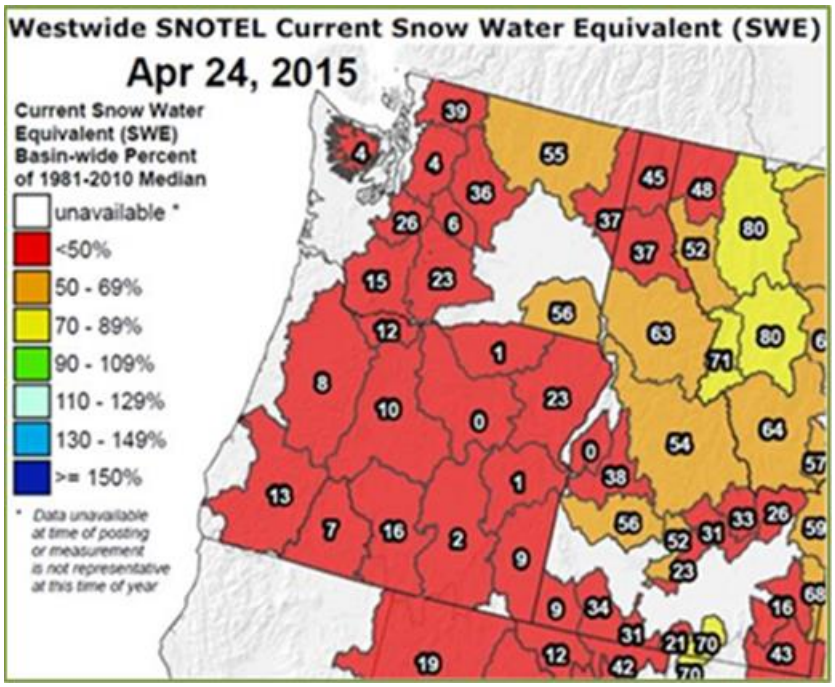
Background

The first six months of 2015 were the warmest first six months of any year over much of Oregon and Washington since record keeping began in 1895.

These record-warm temperatures observed during the winter and spring, coupled with below-average precipitation, led to an exceptionally poor snowpack throughout the winter and spring. (See top graphic on right.)

Temperature and precipitation outlooks for the 2015 summer indicated above normal temperatures and below normal precipitation represented the most likely scenario for the Pacific Northwest.

Furthermore, this outlook was interpreted to pose an above-average potential for multiple large and costly wildfires in Oregon and Washington. (See bottom graphic on right.)



Graphic above illustrates the poor snow accumulation that occurred through the spring of 2015.

Graphic above illustrates the high potential for Large Fires that was forecasted on May 1, 2015.

Trends in Fire Danger

Fire danger indices (Energy Release Component [ERC]) remained at or above average from early June through the end of August in 10 of 12 Predictive Service Rating areas encompassing Oregon and Washington.

Southeast and south central Oregon were the only regions which underwent extended periods of below average fire danger during 2015.

At some point during the 2015 fire season, the record values of dryness that were being recorded were the driest values recorded during the last 15 years.

Seasonal Lightning Statistics

From June 1 through September 15, a total of 51,019 lightning strikes were recorded over Oregon and Washington. The average for fire seasons from 2000-2014 through September 15 is 78,775 strikes. While the number of the 2015 strikes was below this average, the background of drought in 2015 enhanced the ability for lightning strikes to ignite multiple fires in short periods of time.

Firefighters on a "point protection" assignment defend homes from the 2015 Chelan Complex. Photo by Kari Greer, U.S. Forest Service.

C. Interagency Coordination and Cooperation

Throughout the Pacific Northwest's 2015 fire season, the interagency coordination and cooperation enabled all nine agencies to leverage their capabilities and capacity to successfully respond to the collectively determined highest priorities. (These nine agencies are: Bureau of Land Management, U.S. Forest Service, National Park Service, Bureau of Indian Affairs, U.S. Fish and Wildlife Service, Oregon Department of Forestry, Washington State Department of Natural Resources, and Oregon and Washington's State Fire Marshal offices.)

Although individual agency missions and priorities differed, the agency administrators and MAC Group were able to collaboratively determine highest priorities and focus scarce resources where they were needed most.

Interagency conference calls were conducted throughout the 2015 fire season to share information, agree on priorities, and to develop aligned internal direction and public information messages.

These conference calls also occurred prior to the fire season. As the fire season progressed, they became much more regular. During Preparedness Level 3, they occurred twice weekly. By Preparedness Level 4 they occurred daily—including weekends.

Conference call participants included the U.S. Forest Service Regional Forester, the Bureau of Land Management State Director, the Oregon State Forester, the Washington State Forester, and various agency fire directors. The executives reviewed and validated MAC Group priorities and decisions, discussed and resolved socio-political issues, and provided direction on safe practices and priorities given the large number of fires and scarcity of resources.

2015 Wildland Fire Preparedness Forces		
Firefighters	**USFS Total Personnel**	**BLM Total Personnel**
Hotshots and other crews (total personnel)	213	220
Smokejumpers	78	
Engine Crews and others	1,455	325
Total personnel	1,746	545
Equipment and Aviation		
Engines	133	59
Helicopters – Type 1	15	
Helicopters – Type 2&3	10	
Air Tankers – (Single Engine Air Tanker)	1	
Dozers	2	3
Water Tenders	3	4

U.S. Forest Service and Bureau of Land Management firefighting resources assigned to the Pacific Northwest Region for the 2015 fire season.

In addition, the MAC Group met daily from June 30 to September 12 (with a gap due to decreased activity from July 12 to August 2) to prioritize large wildfires and assign—and, in some cases, reassign—resources to meet the collective highest priorities.

Starting in June, most of the Forests and Bureau of Land Management Units in the Pacific Northwest Region requested and received additional firefighting resources each month through severity requests.

D. Protecting Sage-Grouse Habitat

Greatest Threat to Sagebrush Habitat: Fire

Experts have identified fire as one of the greatest threats to sagebrush habitat. In response to this threat, on January 5, 2015, the Department of the Interior Secretary Sally Jewell signed Secretarial Order 3336 on Rangeland Fire Prevention, Management, and Restoration.

This Secretarial Order calls for a comprehensive, science-based strategy to reduce the threat of large-scale rangeland fire to habitat for the greater sage-grouse and the sagebrush-steppe ecosystem.

Implementation of Strategy Called for by the Secretarial Order

Many elements of this strategy are implemented through Bureau of Land Management/U.S. Forest Service plans, including:

- Interagency, landscape-scale assessments to prioritize at-risk habitat and identify priorities for fuels management, preparedness, suppression and restoration based on the quality of habitat at risk from loss to fire;

- Annual treatment and fire management programs to be developed in coordination with interagency partners, states and other partners across jurisdictional and ownership boundaries based on priorities identified in the landscape-scale assessments; and
- Development of strategies to check the spread of rangeland fires where they occur to protect larger, intact blocks of habitat.

Several 2015 Wildfires Impacted Sage-Grouse Habitat

The 2015 wildfires in the Pacific Northwest Region contributed to the further degradation and fragmentation of sage-grouse habitat.

In Oregon, fires impacted a total of 153,142 acres of sage-grouse habitat. These acres included the following habitat management areas:

Very High Priority Habitat – Less than 1 acre

High Priority Habitat – 74,343 acres

General Priority Habitat – 78,798 acres

The 2015 incidents that impacted this habitat included the Bendire Complex, Eldorado, Leslie Gulch, and Cornet-Windy Ridge fires.

The Corner Creek Fire interacted with several fuel treatments that aided in the control of this wildfire and helped prevent it from burning into sage-grouse habitat.

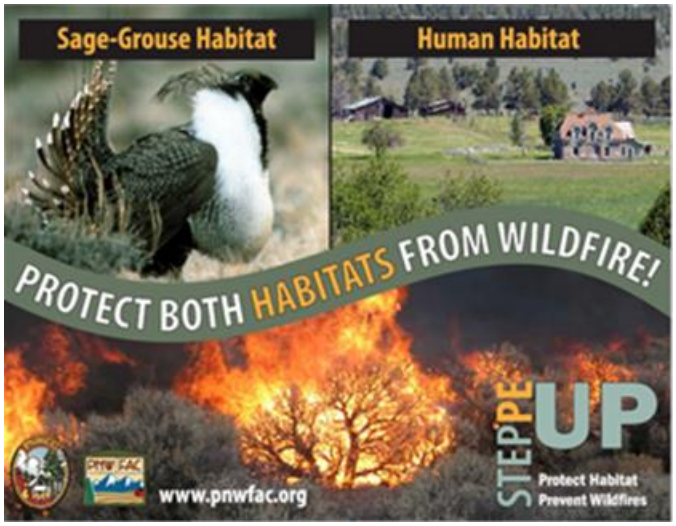
(For more information on Sage-Grouse habitat, see Appendix A – Sage-Grouse Habitat and Rangeland Fire.)

E. Fire Prevention and Mitigation

The fire prevention effort put forth across the Pacific Northwest in 2015 by the Bureau of Land Management and U.S. Forest Service was unprecedented.

Seven Fire Prevention and Education Teams were brought in to augment the base fire prevention program. These teams provided information and education to raise awareness of wildfire issues by enlisting the public's support and actions for creating safer communities.

One key objective of this effort was to mass market awareness of drought conditions and high fire danger. The teams' strategy focused on radio, television and newspapers. Four audio and three video Public Service Announcements that highlighted drought and campfire awareness were distributed to more than 200 media contacts.



Several Fire Prevention and Education Teams worked on the "Steppe Up – Protect Our Sage Community" campaign, designed to raise awareness about the critical loss of habitat by human-caused fires in sagebrush ecosystems.

In addition, 150 tweets were developed with a focus on human-caused wildfires and protecting sage-grouse habitat.

Key Messages Delivered in a Variety of Ways

During 2015, fire prevention experts attended numerous public events to deliver key messages to prevent human-caused fires.

A wide variety of graphics were also created on prevention messaging, including: vehicle-caused fires, campfires, shooting fires, sagebrush habitat effects, fireworks, burn piles, field burning, fire restrictions, and home preparedness. These graphics included posters, fliers, banners, billboards, electronic messages, a coloring book, and trading cards. A select few were translated from English to Spanish.

One of the many fire prevention graphics created by Fire Prevention and Education Teams.

These graphics can be downloaded and customized for partner agencies at: http://ftp.nifc.gov/incident_specific_data/pacific_nw/!SORO/Prevention/

Beginning in 2013, the Pine Creek, Oregon, residents came together to undertake a variety of efforts to help make their homes more defensible to wildfire. Due to this "Firewise" community's actions, none of its homes were lost to the Canyon Creek Complex Fire.

Firewise Program Helps to Save Homes

The national Firewise Program (Firewise.org) encourages local solutions for safety by involving homeowners in taking individual responsibility for preparing their homes from the risk of wildfire.

This program is cosponsored by the U.S. Forest Service, the U.S. Department of the Interior, and the National Association of State Foresters.

In 2013, members of the small community of Pine Creek, Oregon, came together to make their community "Firewise". Using the Firewise Program as a guide, these Pine Creek neighbors began making their homes and property more defensible to the impacts of wildfire. This work included pruning, mowing, thinning trees, clearing flammable materials away from homes, and improving access routes by clearing away dense vegetation.

On August 26, 2015, the Canyon Creek Complex Fire burned into the Pine Creek drainage on the north flank of the Strawberry Wilderness. Fire officials credit this preparation by homeowners and fire crews in advance of the fire for saving all the homes (approximately 50) in the Pine Creek community area.

(For a full report on the 2015 Fire Prevention efforts, see Appendix B – Fire Prevention and Mitigation.)

F. Using the Best Available Science to Forecast Fire Behavior and Threats to Values

Numerous technologies and resources were used in support of fire management efforts during the 2015 fire season. This included using the best available science to provide timely forecasts of fire behavior and threats to values.

The Pacific Northwest Region maintains a high level of qualified analysts and planners, including: Long Term Analysts, Fire Behavior Analysts, Geospatial Analysts, Strategic Operational Planners, and Wildland Fire Decision Support System Technical Specialists.

During the 2015 fire season, the Region was able to place analysts on site at all of the regionally significant fires and complexes. At the height of the fire season, the Regional Fire Analyst remained at regional headquarters to provide briefings to the Multi-Agency Coordination Group and agency executives regarding weather, potential fire behavior, and threats to values.

The Regional Fire Analyst also hosted conference calls and disseminated information with on-scene analysts to understand concerns/needs and exchange information. In addition, the Northwest Geographic Area Coordination Center provided critical situation awareness to the Region regarding fire/fuels analyses and weather/climate outlooks. (Examples of these products are available in Appendix C – The Use of Technology in Support of the 2015 Pacific Northwest Fires.)

G. Air Quality

This satellite image, taken on August 22, shows the smoke impacts across the Pacific Northwest Region generated from several large fires.

Extensive areas of wildfire in Oregon and Washington resulted in widespread public exposure to smoke, as well as extended episodes of unhealthy air quality for many people in communities and rural areas.

For nearly six weeks—beginning at the end of July through the first weeks of September—smoke from wildfires caused significant air quality concerns in Oregon and Washington, as well as adjacent states and Canada.

Smoke obscures the atmosphere on the 2015 Grizzly Bear Complex. Photo by Washington Incident Management Team #4.

Special "Air Resource Advisors" Deployed to Multiple Incidents

The U.S. Forest Service Washington Office Fire and Aviation Management staff is developing the Wildland Fire Air Quality Response Program which deploys specially trained technical specialists—known as Air Resource Advisors (ARA)—and a national cache of smoke monitors available by request.

During the 2015 fire season, these Air Resource Advisors were deployed to multiple incidents across the Pacific Northwest Region. The Air Resource Advisors produced a standard, daily product of predicted air quality conditions to provide smoke impact forecasts to county health departments and local communities. These special air quality forecasts then enabled precautions to be taken to limit health impacts from smoke.

In addition, impacts to transportation corridors, airports and other smoke-sensitive sites were evaluated and made known to agencies responsible for their management. The Oregon and Washington "smoke blogs"—oregonsmoke.blogspot.com and wasmoke.blogspot.com—also provided a primary venue for communicating with the public and air quality partners.

(For more air quality and smoke management information, see Appendix D – Air Quality and Smoke Response.)

IV. The 2015 Fire Season Timeline

A. June

Predictive Services Update

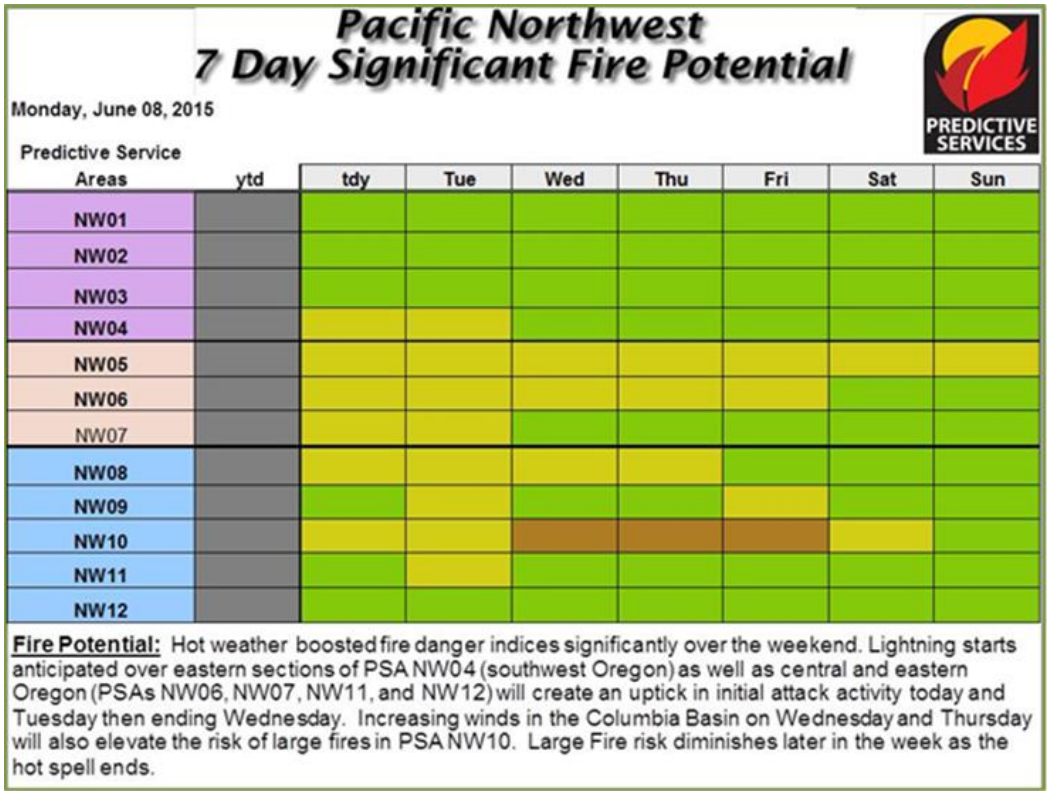
The weather and long-term forecast (for June, July, and August) was for hotter and drier conditions than normal. The "Seven-Day Fire Potential" forecasts were provided daily. (See graphic below.)

The U.S. Forest Service and Bureau of Land Management augmented preparedness forces by obtaining emergency fire funds to preposition (bring firefighting resources into the Pacific Northwest Region from other Regions) and to contract call-when-needed resources.

Based on extremely dry conditions and the potential for numerous large wildfires, these funds were obtained in June, July, August, and September.

During the month of June, the following resource requests were filled in support of the Pacific Northwest's Forest Service and Bureau of Land Management base organizations:

- **53 Crews**
- **164 Engines**
- **24 Water Tenders**
- **14 Dozers and other heavy equipment**
- **55 Helicopters**
- **30 Air Tankers**
- **46 Tactical and Recon Airplanes**



Pacific Northwest
7 Day Significant Fire Potential

Monday, June 08, 2015

PREDICTIVE SERVICES

Predictive Service Areas	ytd	tdy	Tue	Wed	Thu	Fri	Sat	Sun
NW01								
NW02								
NW03								
NW04								
NW05								
NW06								
NW07								
NW08								
NW09								
NW10								
NW11								
NW12								

Fire Potential: Hot weather boosted fire danger indices significantly over the weekend. Lightning starts anticipated over eastern sections of PSA NW04 (southwest Oregon) as well as central and eastern Oregon (PSAs NW06, NW07, NW11, and NW12) will create an uptick in initial attack activity today and Tuesday then ending Wednesday. Increasing winds in the Columbia Basin on Wednesday and Thursday will also elevate the risk of large fires in PSA NW10. Large Fire risk diminishes later in the week as the hot spell ends.

Every day during the 2015 fire season, the Northwest Coordination Center's (NWCC) Predictive Services Unit issued a "7 Day Significant Fire Potential Forecast" (shown on left).

A color-coded rating shows the likelihood of significant wildfires occurring—fires requiring the management efforts of large numbers of firefighting resource.

The risk increases from green (low risk) to yellow to brown (high risk) and finally to the very high rating/risk of red.

Specific forecasts focus on different sub-regions of the Northwest.

Many regional firefighting resources were pre-positioned within the Region to address forecasted short-term increases in fire activity to supplement local resources. (These internal pre-positioning actions are not included in the resource bullets on the previous page.)

Critical Fire Weather: June 9-11
On June 9, an upper low pressure system offshore from Northern California caused lightning which resulted in 1,639 lightning strikes, mainly over eastern Oregon. Nine of these strikes were recorded in southwest Oregon.

During June 10-11, the passage of a dry cold front over central Oregon and Washington created very strong sustained winds over much of the Pacific Northwest.

The Buckskin Fire on June 11. Photo by Brandon Colville.

During these three days—June 9 through June 11—the Pacific Northwest Region experienced 112 new wildfires. Three of these fires escaped Initial Attack (the Buckskin, Long Lake, and Ceremonial Pit fires). On June 10, the National Preparedness Level was 1. Only approximately 600 firefighters were assigned to Large Fires throughout the U.S.

1. Buckskin Fire

For Interactive Map: http://arcg.is/1XxBBwz

On **June 11**, the **Buckskin Fire** was detected on the eastern edge of the Kalmiopsis Wilderness Area on the Rogue River-Siskiyou National Forest. This same area had burned in the 2002 Biscuit Fire. Therefore, the Buckskin Fire area contained a heavy concentration of snags from this previous 2002 fire. The number of snags was a safety concern for fire managers and limited the ability of firefighters to engage in direct suppression.

Even through this area had burned only 13 years prior, fire was actively spreading—driven by weather conditions that had triggered a Red Flag Warning for low humidity and strong winds for the incident's first two days.

Early Suppression Strategy Decision Made
An early decision was made by Forest Service fire managers to utilize a suppression strategy. A Type 2 Incident Management Team from Oregon was ordered to manage the fire. This team took command of the fire at 6 a.m. on June 13.

The Rogue River-Siskiyou National Forest and the Incident Management Team developed an indirect strategy which involved the reinforcement of existing roads and trails that encircled the fire area. With fire activity increasing in Alaska and in Northern California, engaging in aggressive suppression actions to rapidly contain the Buckskin Fire was deemed necessary in order to assure that firefighting resources were available to safely implement this indirect strategy.

Furthermore, allowing the fire to burn deeper into the Kalmiopsis Wilderness Area would make it more difficult to contain due to lack of access. This could potentially encumber firefighting resources for the duration of the fire season. In addition, a large fire in the Kalmiopsis Wilderness would pose periodic threats of fire runs to the east toward Cave Junction and other small communities.

Appropriate Response

While this aggressive suppression action may have driven costs higher than average for an early-season fire in Oregon, considering that the observed fire behavior and measured fire danger indices greatly exceeded seasonal norms for the area, it was deemed an appropriate response.

A portion of the Buckskin Fire burning on June 26.

At its peak, the Buckskin Fire was staffed with 590 firefighters, including 12 Crews and 11 Helicopters. Air Tankers were utilized on June 17 to pre-treat fuels along an indirect fire line to limit the potential of spot fires developing during burning operations.

Both aerial ignition and ground firing operations were required to eventually contain the fire. On July 17, the Buckskin Fire was staffed by a Type 4 organization and listed as 60 percent contained. The fire was declared contained and controlled on October 21.

(For a complete report on the Buckskin Fire, see Four Potential Long-Duration Fires Report in Appendix E.)

June 16
Three Large Fires

On June 16, three Large Fires (a wildfire of 100 acres or more in timber or 300 acres or more in grass/sage) were listed on the National Situation Report: the Paradise Fire (Olympic National Park), the Corn Creek Fire (Oregon Department of Forestry, Douglas County, Oregon), and the Little Basin Fire (Wallowa-Whitman National Forest).

June 27-July 1
Widespread Lightning Produces 222 Wildfires

From June 27 through July 1, widely scattered lightning occurred throughout the Pacific Northwest Region igniting 222 wildfires. Eighteen of these fires escaped Initial Attack and became Large Fires.

At this same time, other Geographic Areas in the United States were also experiencing very active fire incidents. The National Preparedness Level was 3. Thirteen Incident Management Teams and

approximately 8,200 firefighters were assigned to Large Fires in four other Geographic Areas. Alaska, alone, had 64 uncontained Large Fires burning.

Increase in "Unable to Fill" Resource Orders
From June 27 through July 1, the Northwest Coordination Center (NWCC) observed an increase in "UTF" (unable to fill) responses to their resource orders for: Smokejumpers, Rappellers, Hotshot Crews, and other resources.

On the morning of June 27, there were eight Single Engine Air Tankers (SEATS) available—three of these were already committed to the Wenaha (Umatilla National Forest) and Bunker Hill (Umpqua National Forest) fires.

Three Type 1, one Type 2, and one Very Large Air Tanker were available at tanker bases in the Pacific Northwest Region. Five Type 1 Helicopters were available—two of which were assigned to the Buckskin and Bessie fires.

June 28

67 New Fires and Five Large Fires Burning

Both the National and Regional Preparedness Levels are now 3.

There are 67 new fires burning. Two Incident Management Teams are committed—a Type 2 Team on the Bunker Hill Fire on the Umpqua National Forest and the Portland NIMO (National Incident Management Organization) Team on the Paradise Fire in Olympic National Park.

On June 28, three other fires were listed on the National Situation Report: the Sugar Loaf Fire on the Bureau of Land Management's Prineville District, the Buckskin Fire on the Rogue River-Siskiyou National Forest, and the SE Benton Complex on Washington State Fire Marshal Protection lands.

In addition, there were two Large Fires burning in Washington—one on National Park Service lands and the other on local government protection lands. There were three Large Fires burning in Oregon—two on U.S. Forest Service lands and one on Bureau of Land Management lands.

2. Leslie Gulch Fire

For Interactive Map: http://arcg.is/1Nlw62T

The **Leslie Gulch Fire** was started by lightning on the evening of **June 28** on the Bureau of Land Management's Vale District east of the Owyhee River, approximately 13 miles west of the Idaho-Oregon state line.

This fire received a robust Initial Attack response that included a Type 1 and Type 3 Helicopter and one Air Tanker. A decision was quickly made to fully suppress this fire. A Type 3 organization was placed in command of the incident. This full suppression response to the Leslie Gulch Fire was based on: elevated fire danger in that area, the need to provide protection for the community of Jordan Valley, Oregon, and the protection of sage-grouse habitat.

Once the fire escaped Initial Attack, the strategy involved a combination of direct attack and burning from indirect dozer lines. Firefighting resources—including aviation assets—were not in competition at this early date of the fire season. Both Single Engine and Heavy Air Tankers were effective in supporting ground operations with rapid turnaround times from reload bases in Ontario, Oregon and Boise, Idaho.

The Type 3 Incident Management Team ultimately burned out a mid-slope road that followed a retardant line built by the Single Engine Air Tankers, while Heavy Air Tankers dropped on the head of the fire. These suppression actions successfully slowed the fire's forward movement to the south.

In addition, a dozer line was constructed, burned out, and held from the mid-slope Leslie Gulch Road toward the Owyhee River to the west. Three Helicopters supported these efforts.

The final size of the Leslie Gulch Fire was 8,688 acres with 100 percent containment achieved on July 4.

Protecting Rare Environmental Attributes and Threatened Wildlife
The relatively large commitment of personnel to this fire was in support of protecting an "Area of Critical Environmental Concern" known for rare plants, rock formations, and a population of California bighorn sheep. Additionally, "General" and "High Priority" habitat for sage-grouse was protected through the sustained commitment of firefighting resources.

(For a complete report on the Leslie Gulch Fire, see Appendix M – Sage-Grouse Habitat Fires.)

June 30
MAC Group Emphasizes Initial Attack

From June 27 through June 29, the Pacific Northwest Region experienced 165 new fire starts. Nine Large Fires were already burning here. Nationally, there were 45 Large Fires burning and more than 500 new fire starts.

On June 30, the Pacific Northwest Coordination Group activated a Multi-Agency Coordination (MAC) Group to prioritize fires and address the current scarcity of firefighting resources.

The strategic intent for MAC Group decisions:

1. Reallocate resources—as needed—within the Northwest Geographic Area because no additional resources are expected from outside the area;
2. To prepare for a potential lightning event this weekend, rest/recycle resources.

It must be recognized that firefighting resources within the Pacific Northwest Region and nation are now limited. During periods of high new fire ignitions with ongoing Large Fires, competition for resources becomes intense.

One of the key strategies the MAC Group used as a basis for resource allocation was to emphasize Initial Attack on new fires to avoid having additional Large Fires occur—which encumber even more firefighting resources.

3. Wolverine Fire

For Interactive Map: http://arcg.is/1Nly0R3

On **June 29**, a lightning storm ignites five fires near Lake Chelan on the Okanogan-Wenatchee National Forest and North Cascades National Park. All five fires were considered suppression fires. The **Wolverine Fire** was the only one of these five incidents that became a long-term, "problem" fire.

Initial reports indicated the Wolverine Fire was in the upper third of the slope above Riddle Creek at 5,800 feet. A spot fire was also burning 1,000 feet downslope from the Wolverine Fire.

Washington National Guard firefighters wrap cabins in the Pope Creek area in the Entiat Valley on the Wolverine Fire. Photo by Kari Greer, U.S. Forest Service.

From the fire's first day, fire managers recognized that this incident had the potential to threaten the communities of Lucerne, Holden, Stehekin, and Domke Lake. Rappellers, supported by a Type 1 Helicopter, were inserted to evaluate suppression options. They reported that continued direct attack posed a great risk to firefighters.

For the next 27 days, the Wolverine Fire was monitored. Intermittent bucket drops were applied to slow fire movement while crews prepared indirect fire line.

People Evacuated – Type 2 IMT Ordered

On July 30, the fire crossed Wolverine Creek and grew to 1,500 acres, resulting in the evacuation of approximately 240 people from Holden Village and Lucerne. This prompted the order for a Type 2 Incident Management Team.

On July 31, a spot fire crossed Lightning Creek and grew rapidly. Two Heavy Helicopters dropped water on the spot fire. Due to the fire's intensity, this aerial suppression action proved to be ineffective. The fire rapidly spread beyond the Management Action Points identified for burning out the indirect fire line from Lucerne to Holden Village.

The Wolverine Fire continued to spread and move toward Lucerne. At 8:15 p.m., the fire spotted across Railroad Creek and rapidly ran uphill to Domke Mountain. The Entiat Interagency Hotshot Crew and other firefighters performed burn out operations around Lucerne to protect 30 structures—none of which were lost.

However, five structures at Domke Lake were destroyed when an intense crown fire moved across the lake's north shore. A Type 1 Incident Management Team took command of the Wolverine Fire on July 4.

New Fires Impact Wolverine Fire Resources

On the morning of August 14, new fires in the Chelan area rapidly threatened structures in Chelan and the surrounding communities. Resources from the Wolverine Fire were heavily committed to Initial and Extended Attack on these new priority fires.

The Pacific Northwest Incident Management Team #2 managed both the Wolverine Fire and what eventually became the Chelan Complex until August 22 when a Southwest Area Incident Management Team transitioned into both fires along with the Pacific Northwest Incident Management Team #2.

The Wolverine Fire remained active through September 1, requiring the construction of indirect "Community Protection Lines" in the lower Entiat Valley. While these lines were never utilized, they represented the last line of defense for the communities of Plain and Leavenworth.

While five structures were lost on the Wolverine Fire at Domke Lake, many more structures were saved in Lucerne, Holden Village, and Lightning Creek due to the early development of structure protection equipment and hazard mitigation work performed by firefighting resources. (For a complete report on the Wolverine Fire, see Appendix F.)

4. Corner Creek Fire

For Interactive Map:
http://arcg.is/1XxBLEh

On **June 29**, the **Corner Creek Fire** started in a remote portion of Oregon's Ochoco National Forest just south of the Black Canyon Wilderness Area. This fire threatened sage-grouse habitat.

A wind-driven fire, it burned 26,000 acres in just six days. Key management objectives were to prevent damage to private property—both ranches and residences—while preventing the fire from extending into "High Priority" sage-grouse habitat.

The Corner Creek Fire moved from the previously untreated area (left) into a prescribed fire area (right) that had been implemented earlier in the year. As you can see by the burned and unburned trees, the fire intensity was significantly reduced when the fire entered this treated area—allowing for direct control of the Corner Creek Fire's edge.

"Fuel treatments allowed for direct attack in some areas. In other areas they allowed us to pick-up spots easier. Places that were treated had better fire effects, mostly low-intensity and just burning grass and dead stuff below the timber. These treated areas also helped our holding efforts while the untreated areas caused us more control problems."

Initial Attack Incident Commander
Corner Creek Fire

Incident Commanders were successful in preventing the Corner Creek Fire from entering the "High Priority" sage-grouse habitat. Only one trailer was destroyed. (For a complete report on the Corner Creek Fire, see Appendix G.)

B. July

Firefighting Resources Becoming Scarce
On July 1, the National Preparedness Level was 3 (95 Large Fires were burning in Alaska, 17 Large Fires were burning in the Pacific Northwest Region, and another 62 Large Fires were burning in other Regions). On this day, approximately 10,000 firefighters were assigned to Large Fires. Firefighting resources were becoming scarce.

During the month of July, the following severity and prepositioning resource requests were filled in support of the Forest Service's Pacific Northwest Region and Bureau of Land Management base organizations:

- **92 Crews**
- **322 Engines**
- **35 Dozers and other heavy equipment**
- **45 Water Tenders**
- **73 Helicopters**
- **80 Tactical and Recon Airplanes**
- **28 Air Tankers**

5. Newby Lake Fire

For Interactive Map: http://arcg.is/1NlylmN

The **Newby Lake Fire** (originally named the Arnold Peak Fire) was ignited by lightning and detected on **July 2** at approximately 3 p.m. The fire was burning into the United States from British Columbia, Canada. It was originally reported as "no threat" with approximately 125 acres burning within the United States. However, by July 4 the fire had become active and was in excess of 1,200 acres. A Type 2 Incident Management Team in-briefed on July 5—to assume command the next day.

Photo taken from an aerial reconnaissance flight over the Newby Lake Fire on July 4.

While initial action reported by the British Columbia Wildfire Service included Air Tankers and an Initial Attack Crew, no action was taken as the Wildfire Service reported that: *"behavior, crew safety, and the lack of achievable objectives"* precluded suppression actions. Similarly, the Okanogan-Wenatchee National Forest Fire Staff did not immediately staff the fire, with only monitoring planned.

The July 2 Incident Summary (ICS) 209 indicated a Red Flag Warning for the fire for the next several days, with the possibility of moderate fire growth.

On July 4, the Newby Lake Fire became active with warm and dry conditions lingering over the fire area. Between July 4-5, the fire grew to 1,200 acres. Washington State Department of Natural Resources personnel expressed concern regarding the fire threatening the Loomis State Forest and critical lynx habitat.

Resources assigned now included: 4 Type 2 Hand Crews, 7 Helicopters, 2 Engines, 4 Dozers, and 1 Water Tender. A total of 250 personnel were assigned to the fire.

By the evening of July 10, the Newby Lake Fire had grown to 5,065 acres (in the U.S.). The weather forecast called for cooler, moister conditions, including afternoon showers becoming a wetting rain.

An in-briefing for the incoming Type 1 Incident Management Team was scheduled for July 11. This team took command of the fire on July 13. They employed a direct attack strategy to secure the fire—taking advantage of the favorable change in weather conditions. (For a complete report on the Newby Lake Fire, see Appendix H.)

6. Horseshoe Fire

For Interactive Map:
http://arcg.is/1NlyA17

Fire crews work to contain the spread of the Horseshoe Fire. Photo by Tony Woods, Washington Incident Management Team #4.

On **July 3**, the **Horseshoe Fire** started on the Gifford Pinchot National Forest in a remote portion of the Mt. Adams Wilderness Area approximately 15 miles north/northwest of Trout Lake, Washington.

Due to aggressive fire behavior, difficult terrain, lack of access, inadequate safety zones and logistical support, local resources were unable to staff and contain the fire during Initial Attack.

On July 6, the Washington Incident Management Team #4, a Type 2 Incident Management Team, took command of the fire. The team was briefed on the decision to stop fire growth to the smallest footprint and mop-up the perimeter to check fire spread. This strategy was to mitigate a greater long-term risk to firefighters associated with a potential long-term fire.

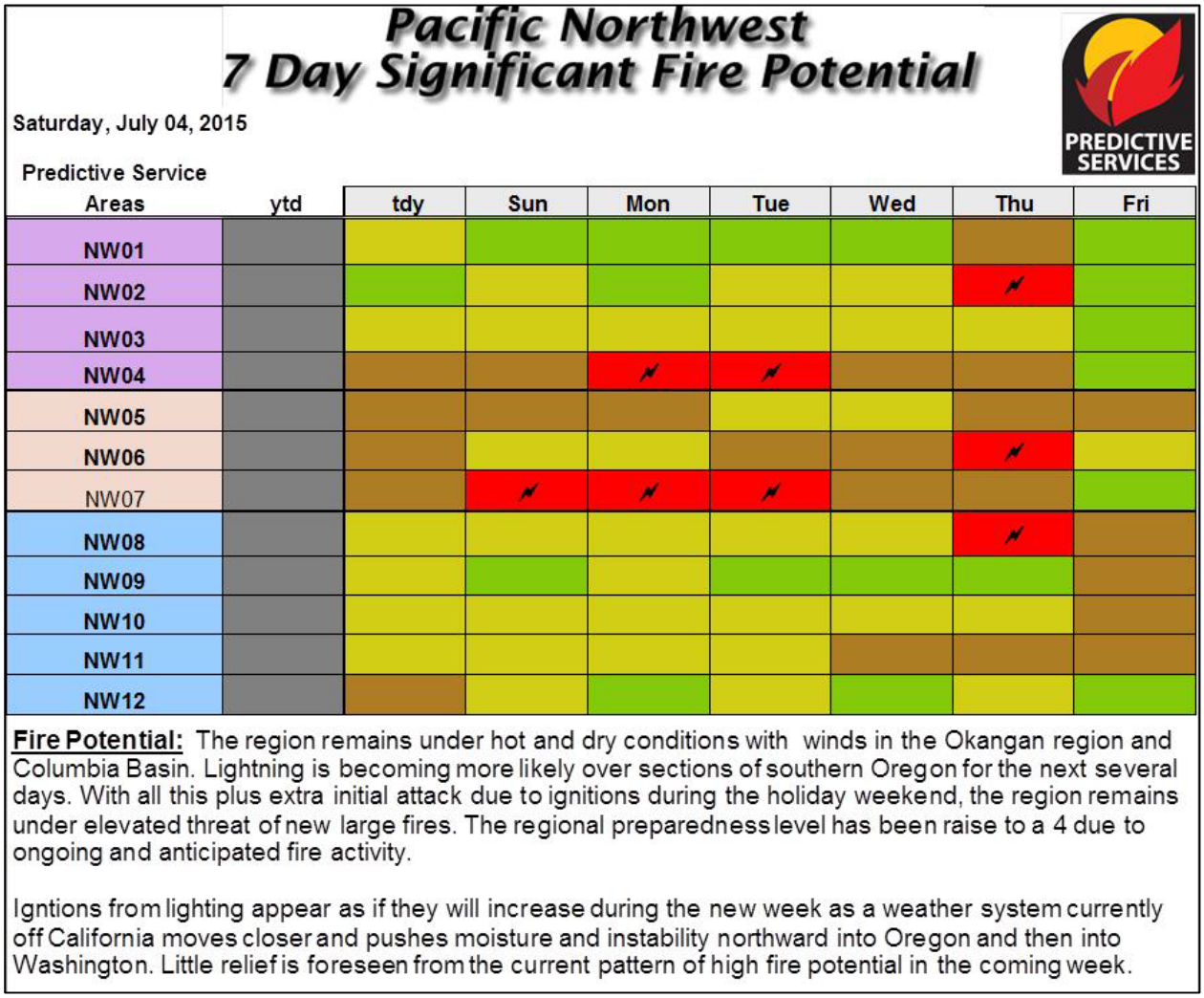
On July 7, once a risk analysis was conducted, Type 2 Crews and Type 2 Initial Attack Crews were utilized to begin control efforts. This control plan included perimeter containment fire lines on two-thirds of the fire and a confine strategy using the 2012 Cascade Creek Fire scar on the other one-third of the fire's perimeter. Type 1 Crews were later added to suppression efforts on the Horseshoe Fire.

On July 9, a thunderstorm produced an additional fire which quickly spread to 60 acres and became the Riley Fire. This fire was also managed by the Incident Management Team assigned to the Horseshoe Fire. These two fires became the Mt. Adams Complex.

Work on the Horseshoe Fire continued until July 12, when it was placed in patrol-only status. The Horseshoe Fire was contained at 340 acres. (For a complete report on the Horseshoe Fire, see Four Potential Long-Duration Fires Report in Appendix E.)

July 4-July 11
In a Six-Day Period:
239 New Fires—9 New Large Fires

On July 4, the Pacific Northwest Region raised its Preparedness Level to 4. The Region was managing 24 active fires with more than 3,000 firefighters assigned. The Predictive Services Unit issued a "Fire Potential" forecast indicating high likelihood for Large Fires in five Predictive Service Areas during the next seven days.



From July 6 through July 11, the Region experienced 239 new fires that resulted in nine Large Fires. Note that Initial Attack was successful in containing 230 fires during this six-day period. Much of this success can be attributed to the additional resources obtained and pre-positioned in advance of the fires. During the month of July, the Pacific Northwest standard complement of Engines was doubled, Helicopters tripled and Crews increased by almost tenfold.

On July 11, the National Preparedness Level was 3. Alaska was in Preparedness Level 5 with 16 Large Fires. The Pacific Northwest Region was in Preparedness Level 4 with 11 Large Fires. Nationally, there were a total of 8,954 firefighters assigned to fires.

7. Blankenship Fire

For Interactive Map: http://arcg.is/1lPmzqt

The **Blankenship Fire** was a lightning-caused fire that began on **July 13** on the Okanogan-Wenatchee National Forest. Located approximately 13 miles northwest of the Wolverine Fire in the middle of the Glacier Peak Wilderness Area, the Blankenship Fire was delegated to the various Incident Management Teams that were assigned to the Wolverine Fire.

Located in the Glacier Peak Wilderness and accessible only by air, the fire was confined by natural barriers that included a riparian drainage on the south and a significant rock component on the fire's other flanks.

The Blankenship Fire spread minimally during the course of the summer. On August 5, the fire was accessed by a Hotshot Superintendent. The Superintendent's assessment was that heavy-handed suppression actions—including a significant falling of trees—would be required to safely attack this fire with ground personnel.

Because of the fire's minimal spread and a desire to support wilderness values, the decision was made by the Okanogan-Wenatchee National Forest and the Pacific Northwest Incident Management Team #2 not to staff this fire. By September 16, it was reported at 212 acres in size. (For more information on the Blankenship Fire, see the Wolverine Fire report, Appendix F.)

8. Stouts Creek Fire

For Interactive Map: http://arcg.is/1QqMDSY

On the early afternoon of **July 30**, 11 miles east of Canyonville near the community of Milo in southern Oregon, an individual using a lawn mower allegedly ignited the **Stouts Creek Fire** on private lands protected by the Douglas Forest Protective Association.

Within this fire's first 12 hours, it burned more than 5,000 acres and spread onto Umpqua National Forest lands. Initial Attack efforts were hindered by extreme weather (Haines 6, low humidity, temperatures more than 100 degrees) and fire behavior associated with plume-dominated fires that included crown fire, rapid/intense fire runs, and long-range spotting. Steep terrain and very dry fuels added to this fire's suppression complexity.

Throughout the Stouts Creek Fire's early duration, 640 residences and five commercial properties were threatened in the communities of Milo, Tiller, Azalea, Drew and Upper Cow Creek.

Fire Transferred to a Joint Unified Command

With the challenging fire weather and fire behavior quickly resulting in a fire that grew to more than 5,000 acres and is threatening structures, the Stouts Creek Fire was quickly transferred from a local Type 3 Incident Management Team to a Joint Unified Command between the Oregon Department of Forestry Incident Management Team #1 and the Oregon Office of State Fire Marshal Team. This transfer of command occurred on the fire's second day, July 31.

On July 30, the Emergency Conflagration Act for this incident had been requested by Douglas County and was invoked by the Governor of Oregon. (This act enables the Office of the State Fire Marshal to assist and support the Oregon fire service during major emergency operations.)

On August 3, the Unified Command was expanded to include the Incident Commander of the Portland National Incident Management Organization (NIMO) Team to address a more significant involvement of federal lands on this incident.

On August 10, sole command of the fire was taken by the Oregon Department of Forestry Incident Management Team #1. On August 13, the fire was transferred to a Unified Command of Oregon Department of Forestry Incident Management Team #2 and Incident Commander, U.S. Forest Service.

At this time, with three of the four western regional Geographic Area Coordination Centers (GACCs) at Preparedness Level 5, many resources were pulled from the Stouts Creek Fire and reassigned to other fires in the Region that posed greater risks to life and communities. On August 16, 16 Contract Crews were pulled from the Stouts Creek Fire and reassigned to higher priority fires in the Pacific Northwest. Fire lines continued to be secured and mop-up proceeded, resulting in total containment of the Stouts Creek Fire on September 23. (For a complete report on the Stouts Creek Fire, see Appendix I.)

C. August

During the month of August, the following severity and prepositioning resource requests were filled in support of the Forest Service's Pacific Northwest Region and Bureau of Land Management base organizations:

- **106 Crews**
- **334 Engines**
- **65 Water Tenders**
- **60 Dozers and other heavy equipment**
- **61 Helicopters**
- **91 Tactical and Recon Airplanes**
- **56 Air Tankers (*Note: some of these were ordered and released and then ordered again*.)**
- **21 Smokejumper and Rappeller Loads**

August 1-6
231 New Fires Occur in the Pacific Northwest Region

From August 1 through August 6, 231 new fires occurred across the Pacific Northwest Region.

9. National Creek Complex

For Interactive Map: http://arcg.is/1QqMsap

On **August 1**, a lightning storm passed through southwestern Oregon igniting the **National Fire** on the Rogue River-Siskiyou National Forest and the **Crescent and Crescent 2 fires** in Crater Lake National Park, approximately one mile east of the National Fire.

The Crescent and Crescent 2 fires were located in close proximity and burned together within the first operational period. The Crescent 2 Fire was five acres when it was overtaken by the larger Crescent Fire the evening of August 1.

All three fires were determined to be full suppression incidents. These three fires comprised the **National Creek Complex**.

The fires experienced delays in staffing. This same lightning storm ignited numerous other fires which placed demands on Initial Attack resources. Other ongoing and emerging incidents within this same Geographic Area were deemed a higher priority. Fire Danger Indices were at 90th percentile levels—with associated fire behavior challenges.

The fire area within Crater Lake National Park is located within the Park's "Recommended Wilderness" that is characterized by continuous fuels with limited road and trail access. Resource management objectives and fire suppression tactics inside the Park are aligned with protecting wilderness values and natural and cultural resources. The most resource-intensive containment actions were accomplished along roads and in locations where suppression tactics were less constrained.

National Creek Complex firing operations along the north entrance road within Crater Lake National Park.

Fire managers contained the fire within areas where natural barriers and roads facilitated the safe and effective halt of fire spread. This achieved the fire management goals of providing for firefighter safety along with abiding by management policies of the National Park Service.

During the next two months, the National Creek Complex was managed by a series of Incident Commanders and Incident Management Teams. The complex became the largest fire in the recorded history of Crater Lake National Park. (For a complete report on the National Creek Complex, see Appendix J.)

10. Baldy Fire

For Interactive Map: http://arcg.is/1lPm2oi

Like the National Creek Complex, the **Baldy Fire** also started on **August 1**. It was located on the Colville National Forest in Washington. Due to significant hazards and access issues, Initial Attack efforts on the Baldy Fire were largely limited to air resources. With the intense fire behavior and lack of safety zones and egress, no crews were engaged in direct attack during this fire's first two days.

On August 2, the Washington Interagency Management Team #4 was ordered for the Baldy Fire. This team took command of the fire at 8 p.m. on August 3. Fellers were assigned to cut hazardous snags along potential containment line locations.

On August 5, smoke plumes reduced solar heating. This caused a reduction in temperature and an increase in humidity which moderated fire behavior. Crews were able to engage the fire directly and made good progress in constructing containment lines.

On August 18, the fire's command transitioned to an Alaska Type 2 Incident Management Team and was included in a complex with nearby fires. Most objectives associated with containing the fire had been met when it transitioned to the Alaska Team. The Baldy Fire was contained at 515 acres. (For a complete report on the Baldy Fire, see Four Potential Long-Duration Fires Report in Appendix E.)

August 2

11. Collier Butte Fire

For Interactive Map: http://arcg.is/1QqMn6z

On **August 2**, the **Collier Butte Fire** started on the west side of the Kalmiopsis Wilderness Area in southwest Oregon on the Rogue River-Siskiyou National Forest. This fire, located within the footprint of the 2002 Biscuit Fire, was started from of a lightning storm that produced more than 900 strikes across the Pacific Northwest Region on August 2. More than 12 other additional wildfires were ignited within the Collier Butte Fire's Gold Beach/Powers Zone during that lightning storm.

Additional Staffing was Pre-Positioned

In anticipation of probable starts across this Zone, additional staffing well above the "normal" number of firefighters on this Forest had been pre-positioned at the Gold Beach Ranger District.

This fire's remote location posed difficult access for firefighters. Values at risk included wilderness as well as both cultural and natural resources. The Agency Administrator's Leader's Intent included containing the fire quickly at a small size.

A Type 2 Team, Oregon Interagency Incident Management Team #3, was ordered and took command of the Collier Butte Fire on August 6 at 6 a.m.

A Combination of Direct and Indirect Strategies Implemented

The Forest and Incident Management Team selected a combination of direct and indirect strategies to protect values at risk and form a "catcher's mitt" of north, west and south containment lines to stop fire spread in all those

Burn out operation on the Collier Butte Fire on August 17. Photo by Josh O'Conner.

directions. The Collier Butte Fire's spread was successfully halted on August 24 at 11,800 acres.

(For a complete report on the Collier Butte Fire, see the
Four Potential Long-Duration Fires Report in Appendix E.)

August 9

On August 9, in anticipation of large numbers of new ignitions, the Pacific Northwest Region Multi-Agency Coordination (MAC) Group adjusted its strategy for prioritizing firefighting resources to include ensuring that firefighters were able to get a break for rest, as well as shifting some resources from Large Fires to be available for Initial Attack.

August 9 MAC Group Strategic Intent

1. Continue to fully utilize all available resources while identifying a ready reserve to staff another Incident Management Team deployment.

2. Maintain crew capability by managing days off and length of assignment.

3. Realign some Initial Attack resources currently supporting large fires in anticipation of increased Initial Attack activity.

August 10-20
415 New Fires – 50 New Large Fires

From August 10-20, The Pacific Northwest Region experienced 415 new wildfires. A total of 50 of these fires escaped Initial Attack.

On August 10, a total of 19, 000 firefighters were assigned to fires nationally.

From August 10-15, yet another upper low pressure system traversed over Oregon and Washington. This storm resulted in 3,617 lightning strikes distributed across much of both states, including a dense number of strikes over western Washington. On August 11, three fires occurred that would become Large Fires.

On August 14, this dry cold front that swept across eastern Oregon and Washington brought the strongest general winds of the fire season east of the Cascades. These winds fanned both the new fire starts as well as the ongoing fires, exacerbating an already busy fire situation.

12. Cougar Creek Fire

For Interactive Map: http://arcg.is/1QqdTRL

The **Cougar Creek Fire** was first reported shortly after its ignition at 9:20 p.m. on **August 10** on the eastern slopes of Mount Adams, Washington. The fire, accessed at 4 a.m. the following morning by an Initial Attack Crew, was reported at 40 acres in size with long-range spotting and short crown runs occurring.

Surface fuel loads in the fire area were heavy dead and down with pockets of lodgepole pine and spruce mortality.

A full suppression strategy—using a combination of direct and indirect attack—was initiated by a Type 3 organization. The objective was to minimize acres burned while also providing protection to the communities of Glenwood and Trout Lake. Both Large and Very Large Air Tankers and a Type I and Type 3 Helicopter were unsuccessful in stopping fire spread. On August 12, a Type 2 Incident Management Team was ordered to take command of the fire.

Fire Spreads into Tribal Commercial Timber Lands

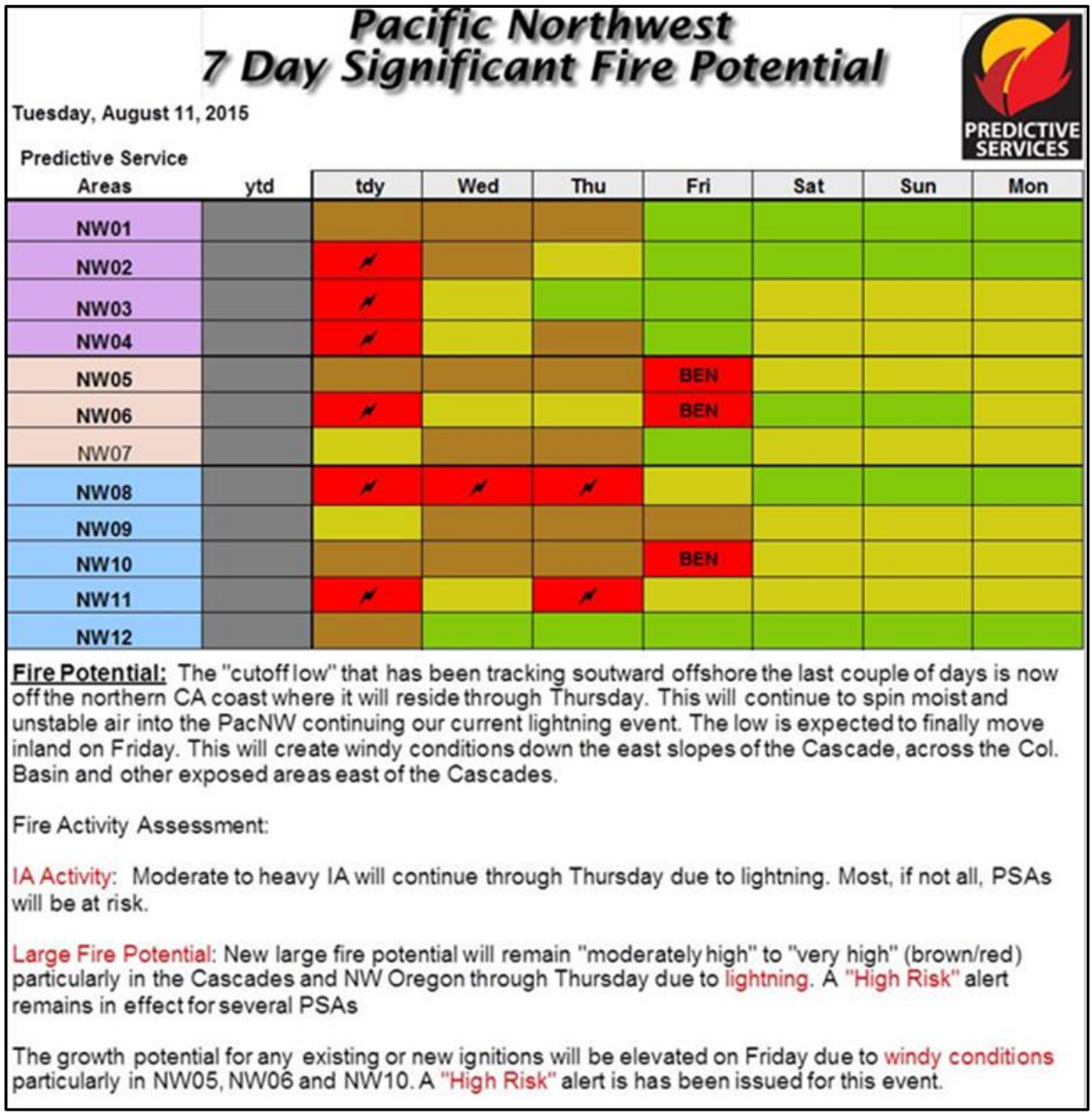
By August 19, both westward and southern fire expansion had been stopped and the threat to the communities of Glenwood and Trout Lake had been minimized by using a series of unmaintained logging roads and natural barriers, including lava flows and old fire scars. However, the fire continued to spread into the commercial timber stands of the Yakama Nation Tribal lands to the north and east.

Because the Cougar Creek Fire was a relatively low-priority fire for the Geographic Area, the Incident Management Team had difficulty obtaining the resources necessary to undertake direct suppression actions. The team therefore opted to use a series of existing roads to contain the fire. This strategy led to an increased loss of economically important timber for the Yakama Nation.

This indirect strategy continued with limited resources until August 29, when a widespread rain fell on the fire area. This change in weather allowed the replacement Incident Management Team to successfully implement a direct attack strategy, including using smokejumpers to complete an important segment of fire line which protected approximately 2,800 acres of commercial timber.

The Cougar Creek Fire was eventually turned back to a Type 3 organization on September 9. Final fire size was 53,534 acres. More than 88,000 gallons of retardant had been delivered to the fire since Initial Attack, while an additional one million gallons of water had been dropped by helicopters in support of fire operations.

(For a complete report on the Cougar Creek Fire, see Appendix K.)



Pacific Northwest
7 Day Significant Fire Potential

Tuesday, August 11, 2015

Predictive Service Areas	ytd	tdy	Wed	Thu	Fri	Sat	Sun	Mon
NW01								
NW02								
NW03								
NW04								
NW05					BEN			
NW06					BEN			
NW07								
NW08								
NW09								
NW10					BEN			
NW11								
NW12								

Fire Potential: The "cutoff low" that has been tracking soutward offshore the last couple of days is now off the northern CA coast where it will reside through Thursday. This will continue to spin moist and unstable air into the PacNW continuing our current lightning event. The low is expected to finally move inland on Friday. This will create windy conditions down the east slopes of the Cascade, across the Col. Basin and other exposed areas east of the Cascades.

Fire Activity Assessment:

IA Activity: Moderate to heavy IA will continue through Thursday due to lightning. Most, if not all, PSAs will be at risk.

Large Fire Potential: New large fire potential will remain "moderately high" to "very high" (brown/red) particularly in the Cascades and NW Oregon through Thursday due to lightning. A "High Risk" alert remains in effect for several PSAs

The growth potential for any existing or new ignitions will be elevated on Friday due to windy conditions particularly in NW05, NW06 and NW10. A "High Risk" alert is has been issued for this event.

August 14 MAC Group Revised Operating Strategy

On August 14, recognizing the need to be nimble with firefighting resources and move them in anticipation of threats to life and communities, the Pacific Northwest Region MAC Group revised its operating strategy to:

1. Continue to fully utilize all available resources while identifying ready reserve resources to staff any new Type 1 or Type 2 Incident Management Team deployments.

2. Build a surge Task Force of crews to rotate between incidents to accomplish mission-critical operations. Timetables for use will be negotiated between affected incidents.

13. Stickpin Fire

For Interactive Map: http://arcg.is/1Tov6vx

In the early morning hours of **August 11**, a lightning storm that passed through the greater Kettle Falls, Washington area started 16 new fires. The **Stickpin Fire**, discovered in mid-afternoon on the Colville National Forest, started in an Inventoried Roadless Area on lands suitable for inclusion in the National Wilderness Preservation System.

Aerial reconnaissance determined that there were no good aerial firefighter delivery opportunities, no available safety zones, and that resources would be dependent on aerial support for safety.

On August 11 and 12, Helicopters were the primary Initial Attack resource. The fire was 30 to 50 acres at this point with a high Haines Index—indicating significant instability in the atmosphere and a high fire growth potential.

The potential for the Stickpin Fire to continue this rapid spread prompted the Colville National Forest to order an Incident Management Team for this incident. The Washington Incident Management Team #1 was assigned. By the time this team takes command at 6 p.m. on August 14, the Stickpin Fire is more than 35,000 acres in size. (For a complete report on the Stickpin Fire, see the Kettle Complex report in Appendix L.)

14. Bendire Complex

For Interactive Map: http://arcg.is/1lPmmU6

On **August 11**, the **Pole Creek** and **Bully Creek fires** were ignited by lightning. Initial acreage for both fires was reported at 500 acres each. These fires eventually merged into the **Bendire Complex.**

The Bendire Complex burned within the Bully Creek Sage-Grouse High Priority Management Areas north of Juntura, Oregon. Bully Creek provides critical connectivity to adjacent Priority Management Areas and is managed as "High-Priority" habitat for sage-grouse.

A Dozer works the Bendire Complex Fire.

Winds proved to be a constant problem on this incident that encouraged extreme fire behavior—with running, spotting, and torching in juniper stands. Fuels were extremely dry with entire juniper boles (trunks) completely consumed by the fire. There were patches of old-growth sagebrush up to eight feet in height.

Due to gusty winds and very dry fuel conditions, and despite the aggressiveness of initial attack forces, the fire made significant runs—resulting in the degradation of more than 40,000 acres of "High Priority" sage-grouse habitat. The Bendire Complex burned 44,397 acres.

(For a complete report on the Bendire Complex, see Appendix 9 – Sage-Grouse Habitat Fires.)

15. Cornet-Windy Ridge Fire

For Interactive Map: http://arcg.is/1XxBUYj

When the **Cornet and Windy Ridge fires** ignited on **August 10**, the fire danger rating was extreme. Public use restrictions for campfires and chainsaws were in effect. On August 10-11, a Red Flag Warning was issued for "thunderstorms producing abundant lightning". In northeast Oregon, this lightning storm ignited 31 fires that were detected by lookouts and aircraft across the Blue Mountain Interagency Dispatch Center's area of responsibility.

The Cornet Fire started at 3:58 p.m. on August 10 approximately seven miles east of Hereford, Oregon. The fire burned on private lands which were protected by the Oregon Department of Forestry, Wallowa-Whitman National Forest, and the Bureau of Land Management's Vale District. The fire's southern portion was located in "Preliminary General Habitat" for sage-grouse.

To the northeast, the Windy Ridge Fire also started on August 10 at approximately 9:56 a.m. in rugged, steep terrain in the Burnt River Canyon. Thirteen Engines responded. Hand Crews were needed for this terrain, but were unavailable. Fire managers attempted to halt fire spread with retardant drops. Eight Single Engine Air Tankers (SEATs) and an unknown number of Heavy Air Tankers worked the fire. Two Helicopters also responded. By the end of the day, the Windy Ridge Fire had burned 1,200 acres.

High temperatures, low relative humidity, and a Haines Index of 5-6 encouraged rapid fire growth. The Cornet Fire burned actively through the night of August 10 with crown fire runs and long-range spotting. By the end of the day on August 11, it had burned 2,000 acres. Initial Attack forces consisted of 6 Crews, 4 Engines, 4 Dozers, and 2 Water Tenders.

At 6 p.m. on August 12, the Oregon Type 2 Incident Management Team #4 assumed command of the Cornet Fire.

Scarce Resources and Imminent Threat to Structures –
Oregon Governor Invokes Emergency Conflagration Act

On Thursday, August 13, the national Preparedness Level was 5. Resources were scarce both in the Northwest and nationally. However, because of the imminent threat to structures, personnel on the Cornet Fire more than doubled to 457 people. Overnight, the fire spotted into Stices Gulch. Two threatened structures were protected.

In response to the Cornet Fire, Oregon Governor Kate Brown invoked the Emergency Conflagration Act. This declaration authorized the Oregon Office of the State Fire Marshal to mobilize structure firefighters and equipment from throughout Oregon to assist local fire resources. Baker County protected structures and additional structure firefighting resources arrived.

The objectives were: Stop fire progression into areas with residences; Minimize acres burned on private land and sage-grouse habitat; and Protect communication infrastructure, mines, and cattle ranches.

The Baker County Sheriff's Office issued a Level 3 Evacuation Order ("*Evacuate immediately: GO")* for Stices Gulch and a Level 2 Evacuation Order (*"Be Set to Evacuate—You Must Prepare to Leave at a Moment's Notice")* for Rancheria Creek, Black Mountain, and Denny Creek. An area closure on the Wallowa-Whitman National Forest was also enacted. A total of 112 residences and 150 out-buildings were threatened. Two residences were destroyed with another 17 threatened. A total of 51 people were evacuated.

Fire Closes Interstate 84 Two Times

Initially, the Windy Ridge Fire moved out of the Burnt River Canyon toward the northwest. By 11 p.m. on August 12, the fire had consumed 10,300 acres. A south wind was pushing the fire toward Interstate 84. By 10:40 p.m. on August 13 the fire is 22,347 acres and had reached Interstate 84 just northwest of Durkee. The Oregon Department of Transportation closed Interstate 84 in both directions twice.

Fire managers were concerned with impacts to pipelines and the Union Pacific transcontinental mainline train tracks that parallel Interstate 84. The Union Pacific continued to operate during the fire and pipeline operations were not interrupted.

The combined Cornet-Windy Ridge fire is now 88,433 acres with 5 percent containment. Firefighting resources include:

- 628 personnel
- 16 Crews
- 34 Engines
- 4 Helicopters
- 12 Dozers
- 9 Water Tenders

Firefighters conducted burnout operations in the evening of August 12 on the northern portion of the fire. Crews continued to patrol and hold lines while mopping-up around structures. As of August 15, a total of 413 people had been evacuated, with six residences destroyed and 187 threatened. One minor injury to a firefighter had been reported.

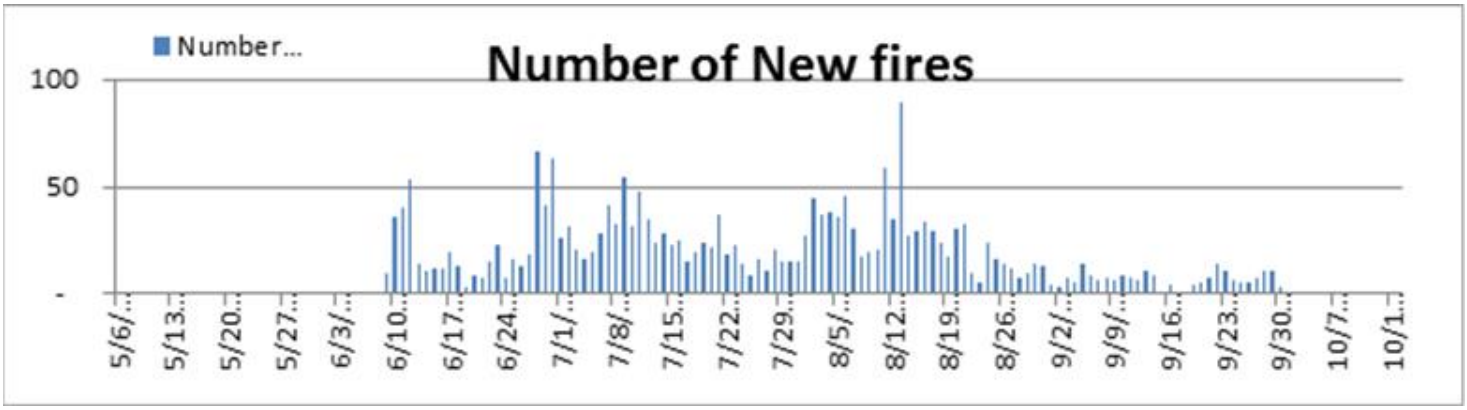
On August 24, command of the fire was transferred to the Oregon Department of Forestry Type 1 Incident Management Team. On August 26, command of the fire was transferred back to the local unit under a Type 4 Incident Commander. As of September 3, fire acreage was 102,089 acres. (For a complete report on the Cornet-Windy Ridge Fire, see Appendix 9 – Sage-Grouse Habitat Fires.)

August 13

Several Large, High-Profile Fires Burning

On August 13, the National Preparedness Level was raised to 5. In the Pacific Northwest Region, several fires that would become large, high-profile fires were discovered on this date. These fires included:

- **Berry Creek** and **Mason Springs** fires on the Malheur National Forest,
- **Nine Mile Fire** on the Okanogan-Wenatchee National Forest, and
- **Bear Ridge Fire** and numerous other fires that would merge into the **Grizzly Bear Fire** on the Umatilla National Forest.



Fire crews implement a burn out operation on the west side of the Canyon Creek Complex.

16. Canyon Creek Complex

For Interactive Map: http://arcg.is/1XxAWeM

The **Canyon Creek Complex,** consisting of the **Berry Creek** and **Mason Springs** fires, was likely ignited by the thunderstorm activity on **August 12**. However, this area had been experiencing lightning activity since August 9. On the afternoon of August 13, the area experienced strong winds.

The Berry Creek and Mason Springs fires were two of 14 fires that ignited on the Malheur National Forest on August 12.

The Berry Creek and Mason Springs incidents received the following Initial Attack resources: 1 Heavy Air Tanker, 3 Single Engine Air Tankers (SEATS), 2 Helicopters with buckets, Smokejumpers, Rappellers, 3 Engines, 1 20-Person Hand Crew, 1 Dozer, and 2 Water Tenders.

An Initial Attack response from the volunteer fire departments in Grant County included 12 Engines and 32 Firefighters with structure protection the highest priority for all resources. The Berry Creek and Mason Springs fires were encircled by retardant lines prior to the winds surfacing on these fires—leading to their eventual escape.

On August 14, the National Interagency Situation Report stated that the growth of the Berry Creek and Mason Springs fires was reported to be in excess of 20,000 acres.

On August 15, 39 residences were destroyed. A Type 1 Incident Management Team was ordered to establish a Unified Command with the Oregon State Fire Marshal.

On August 17, the Canyon Creek Complex became the Number #1 priority fire in the nation and was receiving critical resources as they became available in the resource mobilization system.

On August 17 the Canyon Creek Complex became the Number #1 priority fire in the nation. Photo by Grant County Undersheriff Todd McKinley.

The complex remained active for the next three weeks. By September 4, the fire had increased to more than 110,000 acres.

Canyon Creek Complex Statistics as of September 4

- Structures Damaged: 50
- Residences Destroyed: 43
- Percent Containment: 66 percent
- Number of Personnel: 951
- Types of resources: 1 Type 1 Crew, 24 Type 2 Crews, 5 Helicopters, 38 Engines, 13 Dozers, 18 Water Tenders, 9 Skidgines, 1 Masticator

Fire growth moderated after September 4. The last reported fire size was 110,422 acres. (For a complete report on the Canyon Creek Complex, see Appendix N.)

17. County Line 2 Fire

For Interactive Map: http://arcg.is/1QqdeQ7

The **County Line 2 Fire** started at approximately 1:36 p.m. on **August 12.** The cause of the fire is under investigation. News reports indicate that a vehicle in tow on Oregon State Highway 26 was producing sparks from either a tow chain or a lost tire with the rim sparking on the asphalt. This mishap ignited seven fires along Highway 26, causing the closure of this main travel way from western to eastern Oregon.

During the Initial Attack period, the fire grew rapidly through light flashy fuel under the influence of strong winds (8 to 13 mph, gusting to 22 mph).

Initial Attack resources quickly responded to these multi-fire starts. But extremely dry fuel and wind pushed the fire beyond Initial Attack suppression capabilities.

Due to the fire's proximity to the community of Warm Springs and rural residents, the Warm Springs Agency requested state assistance. Oregon Governor Kate Brown invoked the Emergency Conflagration Act, which allowed state officials to send an Oregon State Fire Marshal Incident Management Team and several Engine Strike Teams to the incident.

At 6 p.m. on the County Line 2 Fire's first day, an additional Type 2 Incident Management Team was ordered. The fire grew to more than 9,000 acres on that first day.

By Second Day, Fire Spreads to 35,000 Acres

Extended Attack operations continued the following day with the fire expanding in all directions under Red Flag Warning weather conditions. The August 13 evening Incident Status Report ICS 209 estimated the fire size at 35,000 acres.

Tactical efforts were focused on burning and holding existing roads, establishing direct fire line with Dozers, while Engines were assigned to protect residences in the Warm Springs, Sunnyside, and Upper Dry Creek residential areas.

According to the ICS 209, aerial firefighting resources were limited with only a single Type 3 Helicopter assigned to the fire. Due to the high winds and rapid fire spread, the effectiveness of the Single Engine Air Tankers assigned to the fire was also limited, while firefighting support from the DC-8 Very large Air Tanker was sporadic due to its use on other evolving wildfires in this Geographic Area.

Number #1 Priority Incident for Geographic Area

By August 15 the fire was 55,200 acres and 20 percent contained. Fire staffing had increased dramatically from Extended Attack. The County Line 2 Fire was currently the number #1 priority incident for the Geographic Area.

A structure damage assessment released by the Oregon State Fire Marshal's Office on August 15 indicated that two residences were totally destroyed. In addition, four residences were damaged. Of these six structures, only two were currently being lived in at the time of the fire.

Firefighters implement burn out operation on the County Line 2 Fire on August 16. Photo by Randy Green.

By August 18, the County Line 2 Fire dropped to the number #15 priority fire for the Geographic Area as new fires near Lake Chelan became the priority incidents.

Fire spread had now been stopped in most areas of the fire with the exception of Shitike Canyon on the fire's southwest flank. For the next 10 days, this canyon provided significant tactical challenges to the Incident Management Team as heavy fuel, strong winds, and steep canyon walls limited fire suppression options.

On August 30, spotty light rain fell on the fire area. The Mutton Mountain Remote Automated Weather Station (RAWS) located northeast of the fire and the Hehe #1 RAWS, located northwest of the fire area, both recorded 0.02 to 0.03 inches of precipitation. This change in weather was enough to moderate fire activity and allowed crews to access the fire edge using a combination of direct hand line and dozer line supported by hose lays and a sprinkler system to finally complete fire line across Shitike Canyon.

On September 3, the County Line 2 Fire was transitioned back to the local unit and a Type 3 organization. Final total fire size was 67,207 acres. (For a complete report on the County Line 2 Fire, see Appendix O.)

18. Carpenter Road Fire

For Interactive Map: http://arcg.is/1XxAZqK

The **Carpenter Road Fire** (Rocky Fire as it was first named) started on **August 13** on the Spokane Indian Reservation. Tribal firefighting resources were dispatched from the Spokane Indian Reservation's own dispatching facility in Wellpinit, Washington. Concurrently, volunteers from Stevens County Fire District #2 were dispatched by the Stevens County 911 Center. The fire was approximately one acre in size when reported. It was contained at 6.4 acres.

At approximately 7 p.m. on August 14, Tribal Law Enforcement informed the Spokane Tribe Fire Management Officer that there was a fire burning in the vicinity of the previous day's Rocky Fire. Tribal resources were again mobilized. Simultaneously, the County 911 Center dispatched the volunteers of Stevens County Fire District #2. The Northeast Washington Interagency Communication Center, informed by the County 911 Center of the fire, logged the incident as Carpenter Road.

Arriving on scene the night of August 14, the Spokane Tribe of Indians Fire Management Officer made the call for a Type 2 Incident Management Team.

Shortly after midnight, with the fire at approximately 1,000 acres in size, the Chief of the Stevens County Fire Protection District #2 reports a civilian fatality (apparently a heart attack) in the fire area. Six homes are also reported lost.

A Department of Natural Resources Type 4 Incident Commander assumes command of the fire the morning of August 15. By midmorning, limited visibility is hampering air support. The Incident Commander reported the fire to be plume-dominated. All primary agencies report that Unified Command is established by 11 am.

On August 15, the Carpenter Road Fire could be described as an explosive, plume-dominated fire that presented a fast-changing situation with many simultaneous efforts underway, including: structure protection under the guidance of the Stevens County Fire Protection District #2, non-Tribal lands wildland effort under the command of a Washington Department of Natural Resources Type 4 Incident Management Team, and the Spokane Tribal Wildland Firefighters continuing their response on Spokane Tribe of Indians lands. A Forest Service Contract CL-415 water scooper aircraft is made available, as well as a DC-10 jet Very Large Air Tanker (VLAT) to support structure protection and suppression activities.

The Carpenter Road Fire continued to expand through August 30, when it approached its final size of 63,975 acres. (For a complete report on the Carpenter Road Fire, see Appendix P.)

19. North Star Fire

For Interactive Map: http://arcg.is/1NlyZk6

The **North Star Fire** started on the afternoon of **August 13** on the Colville Indian Reservation in Washington. This human-caused fire grew quickly in logging slash and heavy timber fuels, exhibiting active crown fire behavior. Initial Attack with Engines, Dozers, one Hand Crew and one Helicopter proved unsuccessful.

Critical firefighting resources necessary to implement the required tactical suppression actions on the North Star Fire were limited due to competition for firefighting resources with other fires in the Pacific Northwest closer to and threatening communities.

Over the next ten days, the fire grew to 170,000 acres with resources slowly arriving. Weather confounded suppression operations with varying wind direction and periods of inversions that limited air operations.

Incident Management Teams assigned to this incident were challenged by having to manage both the North Star and Tunk Block fires. During the fire's first two weeks, limited firefighting resources necessitated point protection (placing suppression resources at high-value locations such as homes) as the primary strategy.

By September 12, the North Star Fire was 211,356 acres and the neighboring Tunk Block Fire was 162,693 acres.

The North Star Fire occurred during the peak of the 2015 wildfire season in the Pacific Northwest. Regional and National Preparedness Levels were both at 5 with resources at and below drawdown levels. The coordination of scant resources with a variety of cooperators was therefore a significant challenge.

Fire behavior exceeded the threshold for safe and effective engagement of all types of firefighting resources. However, even with the challenging fire behavior and limited resources, no loss of life occurred and only one structure was reported as being destroyed. (For a complete report on the North Star Fire, see Appendix Q.)

20. Grizzly Bear Complex

For Interactive Map: http://arcg.is/1NlA2R5

On **August 13**, a dry lightning storm triggered 22 individual fire starts within and adjacent to the Wenaha-Tucannon Wilderness of the Umatilla National Forest.

While Initial Attack occurred on the five non-wilderness fires, the 17 wilderness fires were initially unstaffed due to their remote location and the higher suppression priority for fires positioned closer to communities.

The wilderness fires eventually merged into the Butte Creek or Bear Ridge fires, which later became the **Grizzly Bear Complex**.

A member of the Washington National Guard helps suppression efforts on the Grizzly Bear Complex. Photo by Lori Kimbel.

The Grizzly Bear Complex was located 20 miles southeast of Dayton, Washington. The fire threatened several critical values, including: private property, residences, power lines, the Bluewood Ski Area, active timber sales, and the Mill Creek Municipal Watershed.

A confine and contain strategy was developed after evaluating risks to values, firefighter exposure, and—given the limited resources available—the likelihood of success of any actions. A National Incident Management Organization (NIMO) Team was assigned the task of developing a long-term strategic plan for managing all of the fires within the Wenaha-Tucannon Wilderness.

Between August 13 and August 18, Air Attack reported increasing fire behavior on the wilderness fires.

On August 18, the combined fires ran six miles and grew from 2,000 to 12,000 acres. Four Heavy Air Tankers and a Lead Plane were ordered, but all Air Tankers were committed to other incidents.

On August 19, a Level 1 Evacuation ("*Be aware of the situation: BE READY*") was issued for the communities of Eden Bench, Grouse Flat, and Troy. The next day, this notice was upgraded to a Level 3 Evacuation ("*Evacuate immediately: GO")*. On other fires in Oregon and Washington, more than 250 structures had burned between August 13 and August 20.

Five Primary Residences and 28 Outbuildings Lost

By the evening of August 20, the Washington State Department of Natural Resources and Oregon Department of Forestry Engines were engaged in point protection of structures and the Emergency Conflagration Act was enacted for Wallowa County. While firefighting efforts saved many of the 300-400 homes and outbuildings in the area, five primary residences and 28 outbuildings were lost on August 20 when the fire grew to more than 30,000 acres.

A Type 2 Incident Management Team took command at 6 a.m. on August 21, relieving the local Type 3 organization which had managed the complex to this point. The fire was reported at 48,000 acres—with a Red Flag Warning in place for the incident. Resource orders started to be filled. Aircraft were used to slow fire spread.

By August 25, while the threat to the local communities had been abated, the fire continued to expand until rain and snow were received across the complex on September 5. Command of the complex was transitioned back to the Forest on September 18—after burning more than 75,000 acres. (For a complete report on the Grizzly Bear Complex, see Appendix R.)

21. Eldorado Fire

For Interactive Map: http://arcg.is/1XxC0zf

The **Eldorado Fire** was discovered on the morning of **August 14**. The fire started approximately five miles south of Unity on Oregon Department of Forestry-protected lands near the Oregon state administered Eldorado Campground.

The fire involved multiple jurisdictions: Baker County, Oregon Department of Forestry, Bureau of Land Management Vale District, U.S. Forest Service Wallowa-Whitman National Forest, Ironside Range Protection Association, and private ranch lands.

Fire managers were concerned about impacts to grazing from the loss of grass and range improvements.

The Eldorado Fire was positioned just north of the Bendire Complex, which started on August 11. Similar to the Bendire Complex, the Eldorado Fire was burning on critical "High Priority" sage-grouse habitat.

Initial Attack resources included 12 Engines**,** several Dozers as well as air resources. Hand Crews were not available. A Type 3 Incident Commander took command of the fire with a total of 50 firefighters on the fire lines.

At 10 a.m. on August 15, the Type 1 Oregon Department of Forestry Team #3 took command of the fire. Two Hand Crews were deployed along with the 12 Engines and 1 Helicopter already on the fire. Fire

managers expected continued spread to the south/southwest. By the end of the day, the fire had grown an additional 5,137 acres—for a total of 18,600 acres.

Over the next several days, firefighting resources continued to increase with 492 firefighters, 15 Crews, 27 Engines, and 4 Helicopters assigned on August 20. On August 26, the final fire size was 20,635 acres and the Oregon Department of Forestry Type 1 Incident Management Team returned the fire to the local unit.

(For a complete report on the Eldorado Fire, see Appendix M – Sage-Grouse Habitat Fires.)

22. Kettle Complex

For Interactive Map: http://arcg.is/1NlyQ00

The Graves Mountain Fire

At 9 a.m. on the morning of **August 14**, the **Graves Mountain Fire** is reported on the Colville National Forest. Initial aerial response included the possibility of rappellers. However, due to poor visibility caused by the smoke from the nearby Stickpin Fire, this tactic was cancelled. Eventually, the Graves Mountain Fire could not even be seen due to heavy smoke. Other fires threatening communities required the attention of the available resources.

Late in the morning of August 15, the Graves Mountain Fire had burned under Bonneville Power Authority (BPA) power transmission lines—cutting off all power to the community of Republic, Washington. The Washington Incident Management Team #1, assigned to the nearby Stickpin Fire, was requested to make resources available to assist on the Graves Mountain Fire.

The Renner Fire

On **August 14**, the **Renner Fire** is detected. Initially reported at 0.25 acres, within two hours this fire had grown to five acres and was “quite a ways up the slope”.

A Type 1 Heavy Helicopter was requested to support the fire. A Hand Crew arrives on scene. At approximately 2:30 p.m. its Crew Leader becomes this fire’s Incident Commander. There is a sense that this fire “can be managed”. A request is made for a Dozer to assist operations.

By 11 p.m., with the Renner Fire at approximately 20 acres, the resources pull out as the fire is in check. There are no resources to replace these existing resources. The Renner Fire is a low-priority fire due to its remote location. Other firefighting resources are assigned to neighboring fires. The following day, all resources are diverted to the nearby Carpenter Road, Marble Valley, and Gold Hill fires to support the threats to life and property and to assist in evacuations.

Local fire managers continued to have resources monitor the Renner Fire daily to help determine its priority. During its first few days, this fire was spreading away from critical values.

The Roy Fire

On **August 14-15**, the **Roy Fire** was successfully Initial Attacked by the Washington State Department of Natural Resources. Available resources—coupled with aggressive initial actions and precipitation—supported this successful outcome.

The Washington State Department of Natural Resources had gone into a Unified Command with the local volunteer fire department. By 6 p.m. on August 15, the 120-acre Roy Fire was 100 percent lined. Rain had helped to hold this fire. On the morning of August 17, command of the fire was given to the Washington Incident Management Team #1 to monitor, mop-up, and perform suppression repair work.

Photo of the Kettle Complex fire taken from Boulder Road east of the community of Curlew, Washington.

The Kettle Complex

On the morning of **August 17**, the Stickpin, Graves Mountain, Renner, and Roy fires were grouped under one command as the **Kettle Complex**. Containment of the Roy Fire freed the Washington State Department of Natural Resources' fire managers to focus on new incidents. The Kettle Complex would complete mop-up and suppression repair.

Initially, this complex experienced many days of extreme fire growth. On August 21, the three fires in the Kettle Complex had approximately 100 miles of fire perimeter surrounding more than 48, 000 acres with 18 Crews, 41 Engines, and 2 Helicopters assigned.

The Kettle Complex was listed as 8th highest priority for fires within the state of Washington and 10th overall in the Pacific Northwest Region. Fire managers were confronted with extreme fire behavior and fire weather, as well as determining where to prioritize assignment of their few firefighting resources—based on fire spread and proximity to values at risk (life and communities). Only one structure was reported lost on the Kettle Complex, reported on August 22.

The Stickpin Fire was the primary focus the first two days of Washington Team #1's command. This team had only 4 Crews, 2 Engines, 1 Dozer, and Air Support. Lack of available resources and extremely dry conditions led to the fire moving upslope, where it was influenced by ridgetop winds coupled with a Haines Index of 5. These fire behavior elements resulted in a plume-dominated fire with significant spotting, torching, and crown runs.

Significant Effort to Keep Fire from Crossing into Canada

There was a significant effort to keep the fire from crossing the border into Canada. Resources from Canada were working the north end of this fire. These Canadian resources were part of the overall Kettle Complex under the Unified Command with the British Columbia Wildfire Service. The fire never crossed into Canada.

On August 24, Area Command assigned the Graves Mountain Fire to the Oregon Incident Management Team #2. This team had command responsibility for the Colville Complex which included the Marble Valley and Gold Hill incidents, both Washington State Department of Natural Resources fires.

Management of the Graves Mountain Fire was returned to the Kettle Complex on August 31.

On August 27, when the Incident Management Teams transitioned, the Stickpin Fire was over 48,000 acres in size—representing more than 90 percent of the fire's ultimate growth. The Stickpin Fire accounted for more than 70 percent of the Kettle Complex's total acres burned.

On August 29, a strong cold front ushered in a major change in the weather. During a two-day period, the Kettle Complex received below normal temperatures coupled with rain totals that measured from 0.25 inches to more than 0.5 inches. This weather event changed the incident's entire focus. (For a complete report on the Kettle Complex, see Appendix L.)

23. Chelan Complex

For Interactive Map:
http://arcg.is/1XxB6CQ

A lightning storm that moved through Washington State's Chelan Valley early on the morning of **August 14** ignited multiple fires, including: the Reach, Cagle, Black Canyon, Squaw Creek (later renamed McFarland), Antoine, and First Creek (eventually combined into the **Chelan Complex**) fires.

All of these fires—driven by steady 30 mph winds—spread rapidly.

The Type 1 Incident Management Team assigned to the Wolverine and Blankenship fires, located to the north of these new starts, provided Initial Attack support with resources originally planned for use on the contingency line of the Wolverine Fire.

All aircraft assigned to the Wolverine Fire were also diverted to support these new fires. Even so, a total of 18 structures were lost on the First Creek Fire during the first operational period.

By the morning of August 15, the Antoine, Cagle and Reach fires had merged and were being managed as a single incident referred to as the Reach Fire. The fire had crossed the Columbia River and was well established in Douglas County, Washington.

Firefighters protect homes on the Chelan Complex. Photo by Kari Greer, U.S. Forest Service.

Level 3 Evacuations ("Evacuate immediately: GO") remain in place on the Chelan Complex through August 28 with threatened infrastructure—including the communication towers that provide cellular service for the region. Photo by Kari Greer, U.S. Forest Service.

The Type 1 Incident Management Team continued to commit resources from the Wolverine Fire to support these new fires, with the exception of a limited number of resources needed to secure the improvements at Holden Village.

The fires remained active over the next several days as the first reports of structure losses were reported on the Incident Status Reports (ICS 209s). The Reach Fire indicated 29 structures destroyed. The First Creek Fire listed more than 500 structures of various types threatened, but only two were burned.

By August 19, the McFarland and Black Canyon fires burn together, threatening approximately 462 structures in the Alta Lake and Goat Mountain areas, including a radio transmission tower. Resource sharing between the Wolverine and Chelan Complex fires addresses the short term need with critical resources that include: Helicopters, Type 1 Crews, and mid-level fire line overhead positions.

While good progress is made on the east side of the Columbia River on the Reach Fire, the Reach and Black Canyon fires merge on August 20. On this day, Red Flag Warning conditions affect the entire fire area, leading to significant fire spread on all the Chelan Complex fires. Even so, these fires remain a relatively low priority on the National Incident Management Situation Report. Resources reported from the ICS 209s indicate the following (however the sharing of resources between these two fires is a

common practice to address the short term need as a transfer of command occurs to a second Type 1 Incident Management Team):

Black Canyon Fire – 2 Crews (all types), 8 Engines (all types), 1 Helicopter, 2 Dozers, 3 Water Tenders
Reach Fire – 18 Crews (all types), 60 Engines (all types), 6 Helicopters, 1 Dozer, 12 Air Tankers

As of August 21, the five original fires that now comprise the Chelan Complex have all burned together into a single fire that, from this point forward, will be referred to as the Chelan Complex. The First Creek Fire remains a stand-alone fire. Incoming Incident Commander Templin states that any one of the fires under his command has enough complexity to be managed by a National Incident Management Team.

On August 23, another Red Flag Warning is issued for the Chelan Complex area as damage assessments continue to catch up with fire spread. The current totals indicate that 44 structures have been destroyed on the Chelan Complex. The First Creek Fire reports 19 structures destroyed and 22 structures damaged.

As the western side of the Chelan Complex is contained, the threat to structures on the eastern flank of the fire continues in the Alta Lake area. According to the August 26 ICS 209 report, resources assigned to the Chelan Complex include: 8 Crews (all types), 62 Engines (all types), 8 Helicopters, and 10 Dozers.

Level 3 Evacuations ("*Evacuate immediately: GO")* remain in place on the Complex through August 28 with threatened infrastructure—including the communication towers that provide cellular service for the region. On August 29, precipitation is received that allows some Level 3 Evacuations to be reduced. Fire size at the time of the precipitation was 93,079 acres.

On August 31, a third Type 1 Incident Management Team transition occurs on the Chelan Complex. It is now being managed in conjunction with the Okanogan Complex. Minimal fire activity occurs on the Chelan Complex from this time forward. Due to improved mapping of the fire perimeter, a reduction of acreage burned occurs.

(For a complete report on the Chelan Complex, see Appendix S.)

August 14
Several More Large Fires Occur

On August 14, several more Large Fires occurred: the **Lime Belt**, **Tunk Block, Beaver Lake, and First Creek fires** on the Okanogan-Wenatchee National Forest; **Graves Mountain**, **Renner,** and **Roy fires** on the Colville National Forest; and the **Eldorado Fire** on Oregon's Bureau of Land Management's Vale District.

Beginning on the evening of August 13 through the early morning hours of August 14, the Tonasket Ranger District of the Okanogan-Wenatchee National Forest experienced numerous lightning-caused wildfires. During this time period, the Forest Service responded to 10 new fires, successfully suppressing seven of these new ignitions at less than one acre in size.

The Northeast Region of the Washington State Department of Natural Resources was also heavily committed to Initial Attack during this time, placing a strain on resource availability to support Initial Attack actions.

24. Beaver Lake Fire

For Interactive Map: http://arcg.is/1Towoqt

At approximately 2:40 p.m. on **August 14** when Initial Attack crews arrived on the **Beaver Lake Fire**, it was approximately 20 acres with two to four-foot flame lengths in heavy fuels, burning on a steep slope. Initial Attack resources were limited to two Short Squad Hand Crews (eight people total) and one Type 4 Engine.

Without a solid anchor point and with no available air resources to support ground tactics, the initial strategy was to contain the fire within a series of existing roads and force its spread toward the 2006 Tripod Fire area.

While successful with this strategy, over the next two burn periods, the Beaver Lake Fire grew to 400 acres and was combined with other evolving fires in the local area into the Okanogan Complex.

25. Lime Belt Fire

For Interactive Map: http://arcg.is/1MZWFXL

At 6:59 a.m. on **August 14**, dispatch received a call of smoke (later named the **Lime Belt Fire**) on the west side of the Okanogan River near Conconully, Washington. The Initial Attack Incident Commander reported there were two fires actively burning in grass and scattered timber totaling 10-15 acres. The initial dispatch for these fires was one Rappel Type 2 Helicopter.

This Helicopter with five crew members was dispatched at 1 p.m. By 2 p.m. the Incident Commander had placed orders for two Heavy Air Tankers, two Helicopters, one Strike Team of Type 3 or Type 6 Engines, three Type 2 Initial Attack Hand Crews, and three Dozers. None of these resource orders, however, were able to be filled.

The initial strategy involved point protection with the limited Initial Attack personnel. By 4:30 p.m., the fire was reported to be 800 acres. Given the limited number of available resources, an indirect strategy using roads with point protection of values at risk became this incident's primary tactic.

The incoming Type 3 Incident Commander placed additional orders for Crews, Heavy Equipment, and Division Supervisors/Task Force Leaders to provide span of control on this rapidly spreading fire.

By midnight, the Lime Belt Fire was 2,560 acres and was threatening the community of Conconully, which was under a Level 3 Evacuation Order ("*Evacuate immediately: GO")* from the Okanogan County Sheriff's Office.

Over the next 24 hours, the fire remained active, making a three-mile run to the south in light fuels. Given the scope of the fire and threat to local communities, on the morning of August 17, the fire was transitioned into the Okanogan Complex under the management of a Type 2 Incident Management Team. (For a complete report on the Lime Belt Fire, see the Okanogan Complex Report in Appendix 16.)

26. Tunk Block Fire

For Interactive Map: http://arcg.is/1OAkata

The **Tunk Block Fire** was reported at approximately 2 p.m. on **August 14**. The initial response to this fire included an Engine from the local fire department and several units from the Okanogan County Sheriff's Department. Less than one hour into the fire, the Initial Attack Incident Commander requested Air tankers for structure protection. However, with winds in excess of 45 mph, all aircraft were grounded.

By 6 p.m. that evening, a Level 3 Evacuation Order ("*Evacuate immediately: GO")* was in place for McLaughlin Canyon. At this time, the fire was spreading rapidly through grass and scattered timber fuels. Once again, Air Tankers were requested by the Incident Commander to address structure concerns ahead of the fire.

Less than two hours later, the local fire department reported that they had been burned over. Several firefighters were taken to local hospitals for symptoms associated with smoke inhalation. No serious injuries occurred with this burn over incident.

On August 17, the Tunk Block Fire was reported at 2,000 acres with 65 total personnel assigned. Some fire line had been constructed that had successfully contained the fire's spread. However, as winds increased and warming and drying occurred over the next two days, the fire escaped this limited containment, burning across Highway 97 and the Okanogan River on August 19. A second significant fire run of 36,000 acres occurred on August 21 as the fire burned onto the Colville Reservation.

On August 21, the Tunk Block Fire was delegated to a Type I Incident Management Team as part of the Okanogan Complex. Damage assessment as of August 31 indicated that 24 residences and 45 cabins had been damaged or destroyed, with an additional 35 structures also reported as damaged or destroyed. (For a complete report on the Tunk Block Fire, see the Okanogan Complex Report in Appendix T.)

This home on Highway 97 was successfully saved due to suppression efforts by Engine Crews.

Photo by Jean Hawthorne.

27. Okanogan Complex

For Interactive Map: http://arcg.is/1NlApes

The **Okanogan Complex** is first indicated on the National Incident Management Situation Report on **August 16** at 2,000 acres with only three Engines assigned. By August 17, a Type 2 Incident Management Team had been assigned. Five existing fires were consolidated under the command of this team.

These fires included:

- **Lime Belt Fire** – 4,000 acres
- **Blue Lake Fire** – 800 acres
- **Tunk Block Fire** – 2,000 acres
- **Beaver Lake Fire** – 400 acres
- **Nine Mile Fire** – 4,704 acres (80 percent contained, staffed by Okanagan Fire District #11)

According to the August 18 National Incident Management Situation Report, the Okanogan Complex was staffed with a total of 8 Crews, 19 Engines, and 2 Helicopters. As of this date, ten structures had been lost on this incident.

Responding to this Rapidly Evolving Fire Situation
With several new starts associated with the August 15 lightning event, realignment of fires and resources were required to address the management of this rapidly evolving fire situation.

The Washington State Department of Natural Resources placed a Short Type 2 Incident Management Team on the Nine Mile Fire. In addition, the Washington State Department of Natural Resources was also taking action on other small fires, including: the Shadow Lake, Paradise, and Happy Hills fires.

(For a complete report on the Okanogan Complex, see Appendix T.)

28. Twisp River Fire

For Interactive Map: http://arcg.is/1OAjuE4

At 12:38 p.m. on **August 19**, the initial incident report call came in to the Okanogan County Sheriff's Office of a two-acre fire which would become known as the **Twisp River Fire**. This fire started about five miles west of the town of Twisp, Washington in the vicinity of mixed ownership fire protection lands. As a result, multiple agencies were responsible for managing the fire.

The Rural District 6 Fire Department received a dispatch at 12:42 p.m. The fire chief deployed two Type 3 Engines, two Type 2 Tactical Tenders, three Type 5 Engines, and three Type 1 Engines.

The Initial Attack Incident Commander requested a Heavy Air Tanker, a Helicopter, and Air Attack.

The first firefighters on scene stated they saw three- to four-foot flame lengths at the head of the fire. The fire was terrain driven; the wind was light out of the southeast; and the fire was roughly two to three acres in size.

By 12:55 p.m., 20 homes were threatened and evacuations had occurred. Four minutes later, at 12:59, the fire chief requested a Helicopter ASAP.

At 1 p.m., the Okanogan-Wenatchee National Forest responded by dispatching four overhead (including a Type 3 Incident Commander Trainee), four Engines, and one Crew. The Forest Service Battalion Chief was informed that this was a Washington State Department of Natural Resources fire.

By 1:14 p.m., the fire was running, spotting, and torching with more than 20 structures threatened.

At 1:17 p.m., a Washington DNR Type 3 Incident Commander was on scene. Shortly thereafter, Unified Command had been established with the Forest Service, Washington DNR, and Okanogan Fire District 6. The fire was reported to be approximately 20 acres.

By almost 3 p.m., the Forest Service Incident Commander Trainee sized-up the fire:

> *"At this time at least 50-plus acres with running, torching, spotting. There are 20-plus homes directly threatened in imminent danger at head of fire. Need fixed-wing heavy aircraft for added structure protection. If no heavy aircraft are available, we will have another 100-plus structures/homes in imminent danger in a box canyon. Rotors and Air Attack are currently working the left flank to keep the fire from progressing up Twisp River. We have multiple crews and engines working at structure protection at this time. We would like a second heavy aircraft."*

Shortly after this size-up, there was a report of an entrapment on the fire's east flank. Actions occurred quickly over the next hour.

At 3:08 p.m., the Forest Service Incident Commander Trainee ordered all resources to disengage from the fire and head to the staging area. The Incident Commanders alerted dispatch that they had an entrapment on the fire.

The fire continued to move with heavy use of Aircraft and assignment/reassignment of Engines.

Later that afternoon, it was confirmed that three firefighters had perished.

A Type 1 Incident Management Team was ordered to take command of the fire.

[Additional official information on the Twisp River Fire can be found at the Wildland Fire Lessons Learned Center Incident Review Database: "Twisp River Fire Fatalities and Entrapments Learning Review Status Report" http://www.wildfirelessons.net/viewdocument/?DocumentKey=c221a055-a972-478c-be5c-9a16c2d5929c .]

(For a complete report on the Twisp River Fire, see the Okanogan Complex in Appendix T.)

August 18-20
Okanogan and Chelan Complexes
Share Resources

Between August 18-20, the Okanogan Complex's fires had expanded greatly, now covering more than 200,000 acres. Additional structure losses were also reported during this time period.

Over the next 10-day period, a series of Red Flag Warning weather events affect the fire area. Except for the Nine Mile Fire, rapid fire spread occurs on all of the Okanogan Complex's incidents. To more effectively assign resources to their expanding geographic reach, the Okanogan Complex and Chelan Complex to the south begin to share firefighting resources.

During this time period, fires transition in and out of the Okanogan Complex, including the North Star Fire. Incident Management Teams continue to be transitioned between the multiple fires within north central Washington with teams being realigned to best meet incident command complexities and objectives.

On September 1, as the Okanogan Complex approached 50 percent containment, this incident was near its maximum total number of resources. The September 1 InciWeb evening update for the Okanogan Complex reported:

- **Size:** 147,979 acres
- **Containment:** 45 percent
- **Estimated Cost to Date:** $16.4 million
- **Injuries:** 6
- **Residences Burned:** 123
- **Total Personnel:** 1,253
- **Committed Resources:** 20 Crews, 103 Engines, 16 Dozers, 27 Water Tenders, 4 Helicopters

Fire activity dropped off substantially after September 1. In addition, the reported fire sizes were reduced due to the ability to perform more accurate mapping of the fires' perimeters.

As the damage assessment became more refined, the total number of structures damaged or destroyed was reduced to 120. Incident Management Team oversight of the Okanogan Complex continued until September 21. (For a complete report on the Okanogan Complex, see Appendix T.)

August 20-21
Critical Fire Weather
Encourages Rapid Spread of Ongoing Fires

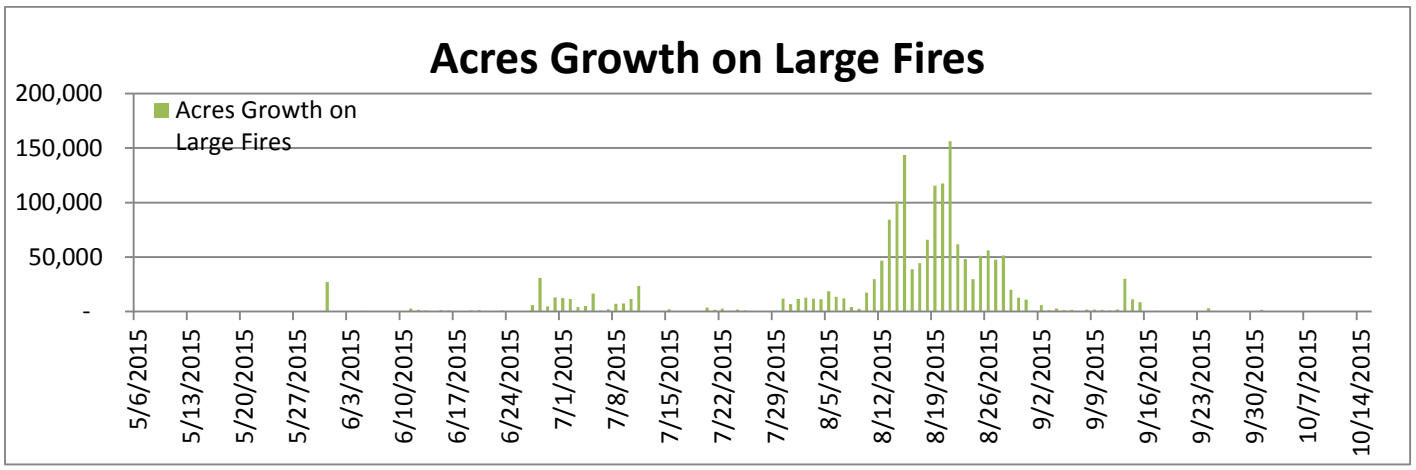
During August 20-21, yet another dry, classic cold front moved across the Pacific Northwest Region from northwest to southeast. While this system was not accompanied or preceded by lightning, it brought strong and gusty winds that encouraged the rapid spread of ongoing fires.

By August 20, the National Preparedness Level was at 5. (The Pacific Northwest, Northern Rockies, and Northern California Geographic Area Coordination Centers [GAACs] were at 5 and the Great Basin GAAC was at 4.) There were 29,500 firefighters assigned and 48 Incident Management Teams deployed.

The National Incident Management Situation Report for Large Fires listed 63 incidents nationwide. On August 20, the Okanogan Complex reported 23 structures burned.

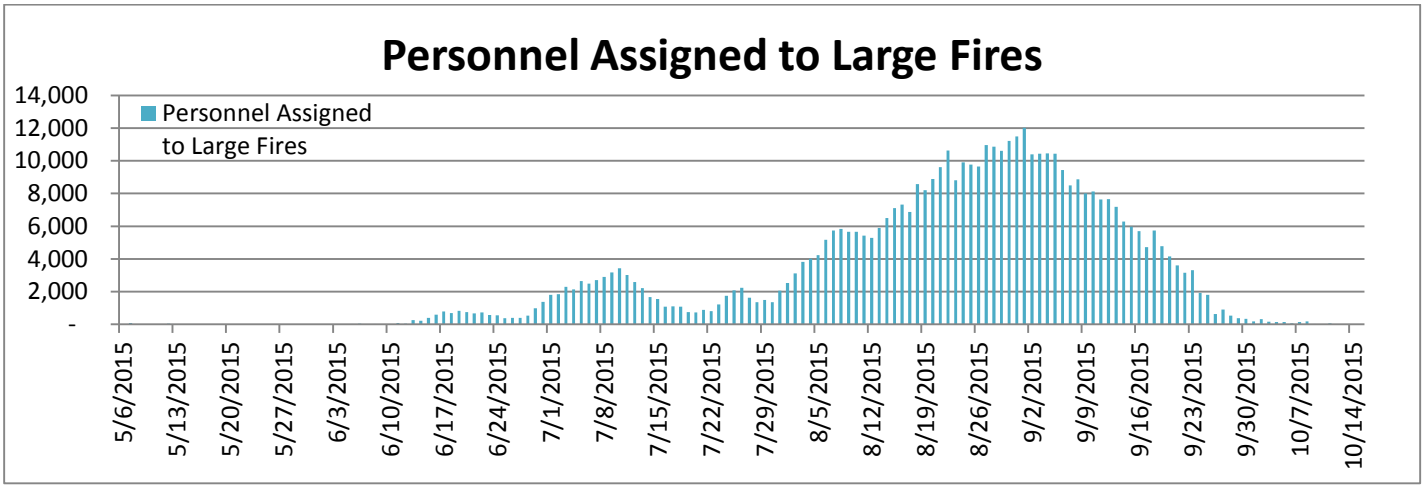
On August 21, the cold front winds caused many Large Fires to increase substantially, some running more than ten miles to the south. Despite these severe burning conditions, no firefighters or members of the public were severely injured.

While more than 200 structures were most likely lost on this day, many were not reported until being discovered on succeeding days.



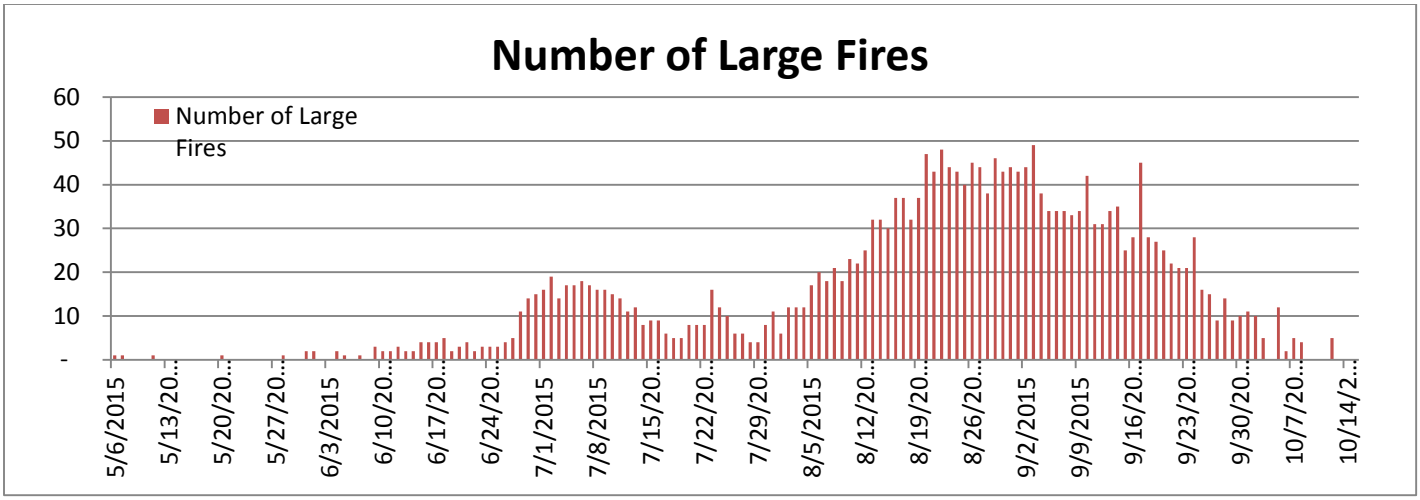
August 27

The peak for resource mobilization for the 2015 fire season in the Pacific Northwest Region occurred on August 27 with 256 Hand Crews, 877 Engines, and at least 11,450 firefighters assigned to wildfires.



August 29

On August 29, a strong low pressure system and associated cold front moved across the Region bringing generally little rain but included wind gusts over 70 mph on the Oregon coast and 60 mph winds in sections of eastern Oregon and Washington. Rapid fire spread on numerous ongoing incidents was observed with large acreage increases.



D. September

During the month of September, the following resources were added to the Forest Service's Pacific Northwest Region and Bureau of Land Management base organizations:

- **6 Crews**
- **20 Engines**
- **2 Dozers and other heavy equipment**
- **1 Water Tender**
- **13 Helicopters**
- **4 Air Tankers and 11 Tactical and Recon Airplanes**

Season Slowing Events

Additional cold fronts and associated cool, damp weather started to occur the first week of September and continued throughout the middle of the month.

Precipitation was received on both sides of the Cascades. Fire danger indices were pushed dramatically downward. This resulted in few new Large Fires and significantly diminished fire spread on ongoing incidents.

V. Glossary

A. Acronyms

ERC

Energy Release Component. This is measurement of fire danger indices. Specifically, it is the computed total heat released per unit area (British thermal units per square foot) within the fire front at the head of a moving fire.

GACC

Geographic Area Coordination Center. A political boundary, designated by the wildland fire protection agencies, where these agencies work together in the coordination and effective utilization of fire management resources. Each Geographic Area includes a Geographic Area Coordination Center (GACC) that handles fire intelligence, information, ordering, and dispatch.

GeoMAC

Geospatial Multi-Agency Coordination. To provide fire managers near real-time information, fire perimeter data is updated daily based on input from incident intelligence sources such as GPS data and infrared imagery from fixed-wing and satellite platforms. Thus, the GeoMAC website allows users in remote locations to manipulate map information displays, zoom in and out to display fire information at various scales and detail, and print hard copy maps for use in fire information and media briefings, dispatch offices, and coordination centers.

IA

Initial Attack. The actions taken by the first resources on arrival at a wildfire to protect lives and property and prevent further expansion of the fire.

IAP

Incident Action Plan. The plan that contains objectives reflecting the overall incident strategy and specific tactical actions and supporting information for the next operational period on an incident. The plan may be oral or written. When written, the plan may have a number of attachments, including incident objectives, organization assignment list, division assignment, incident radio communication plan, medical plan, traffic plan, safety plan, fire weather, and incident maps.

IC

Incident Commander. The individual responsible for the management of all operations at the incident site. The IC is usually in charge of an incident management team, which may be national (Type 1) or regional or local (Type 2 or 3) and which includes a wide variety of resources and personnel.

ICS 209

The **Incident Status Summary Report**.

IMT

Incident Management Team. The Incident Commander and appropriate general staff or command staff personnel assigned to manage an incident. Teams vary in size and experience and are assigned based on availability of the teams and complexity of the incident.

MAC

Multi-Agency Coordination. Multi-Agency Coordination (MAC) Group is a generalized term which describes the functions and activities of representatives of involved agencies and jurisdictions who come together to make decisions regarding the prioritizing of incidents and the sharing and use of critical resources. The MAC organization is not a part of the on-scene Incident Command System and is not involved in developing incident strategy or tactics.

MIST

Minimum Impact Suppression Tactics. The application of strategy and tactics that effectively meet suppression and resource objectives with the least environmental, cultural, and social impacts.

NIMO

The **National Incident Management Organization** is composed of four Incident Management Teams. Each team consists of seven members who are assigned fulltime to Command and General Staff positions. The primary focus of this program is the management of complex wildland fire.

NWCC

The **Northwest Interagency Coordination Center** is the Geographic Area Coordination Center for the Pacific Northwest Region which includes the states of Oregon and Washington.

PNWCG

The **Pacific Northwest Wildfire Coordinating Group** includes these 11 partner agencies that collaborate on wildland fire management issues: U.S. Forest Service, Bureau of Land Management, Bureau of Indian Affairs, National Park Service, U.S. Fish and Wildlife Service, Oregon Department of Forestry, Washington State Department of Natural Resources, Washington Association of Fire Chiefs, the Oregon Fire Chiefs Association, the Oregon State Fire Marshal and the Washington State Fire Marshal.

ROSS

Resource Ordering and Status System. The National Wildfire Coordinating Group operates this web-based database system for managing wildland firefighting resources. This system improves efficiency of borrowing and sending home fire equipment in a large, campaign-type fire. It coordinates equipment movements across bureaucratic lines, making state and federal resources look more like a single pool of equipment and staff.

VLAT

Very Large Air Tanker. These very large capacity air tankers include DC-10 jets.

WFDSS

The **Wildland Fire Decision Support System** assists fire managers and analysts in making strategic and tactical decisions for fire incidents. It has replaced the WFSA (Wildland Fire Situation Analysis), Wildland Fire Implementation Plan (WFIP), and Long-Term Implementation Plan (LTIP) processes with a single process that is easier to use, more intuitive, linear, scalable, and progressively responsive to changing fire complexity. Thus, WFDSS integrates the various applications used to manage incidents into a single system, which streamlines the analysis and reporting processes.

B. Definition of Terms

Aerial Fuels
All live and dead vegetation in the forest canopy or above surface fuels, including tree branches, twigs and cones, snags, moss, and high brush.

Aerial Ignition
Ignition of fuels by dropping incendiary devices or materials from aircraft.

Aerial Reconnaissance
Use of aircraft for detecting and observing fire behavior, values at risk, suppression activity, and other critical factors to assist command decisions on strategy and tactics needed for fire suppression. Often called “aerial recon” or just “recon”.

Agency
Any federal, state, or county government organization with jurisdictional responsibilities.

Air Attack
The deployment of fixed-wing or rotary aircraft on a wildland fire to drop retardant or suppressant, shuttle and deploy crews and supplies, or perform aerial reconnaissance of the overall fire situation. Can also refer to the person functioning as air attack officer and directing aerial operations.

Air Tanker
A fixed-wing aircraft equipped to drop fire retardant or suppressant.

Anchor Point
An advantageous location, usually a barrier to fire spread, from which to start building a fire line. An anchor point is used to reduce the chance of firefighters being flanked by fire.

Area Command
An organization established to: 1) oversee the management of multiple incidents that are each being handled by an Incident Management Team organization; or 2) to oversee the management of a very large incident that has multiple Incident Management Teams assigned to it. Area Command has the responsibility to set overall strategy and priorities, allocate critical resources based on priorities, ensure that incidents are properly managed, and that objectives are met and strategies followed.

Backfire
A fire set along the inner edge of a fire line to consume the fuels in the path of a wildfire or to change the direction of force of the fire's convection column.

Blowdown
Trees that are knocked down during a wind throw. There is controversy about what action should be taken when blowdown occurs on forested lands, because some people want the blowdown trees to be left on the ground, but when these trees are not removed from the forests many times there is an infestation of beetles and other unwanted insect species that can weaken the surrounding forests.

Blow-up
A sudden increase in fire intensity or rate of spread strong enough to prevent direct control or to upset control plans. Blow-ups are often accompanied by violent convection and may have other characteristics of a fire storm. (See “Flare-up”.)

Brush
A collective term that refers to stands of vegetation dominated by shrubby, woody plants or low-growing trees, usually of a type undesirable for livestock or timber management.

Bucket Drops
The dropping of fire retardant or suppressant from a specially designed bucket slung beneath a helicopter.

Burn Out
Setting fire inside a control line to widen it or to consume fuels between the edge of the fire and the control line.

Burning Period
That part of each 24-hour period when fires spread most rapidly, typically from 10 a.m. to sundown.

Chain
A unit of linear measurement equal to 66 feet, often used in describing the length of fire line built or yet to be built.

Cold Front
The leading edge of a relatively cold air mass that displaces warmer air. The heavier cold air may cause some of the warm air to be lifted. If the lifted air contains enough moisture, the result may be cloudiness, precipitation, and thunderstorms. If both air masses are dry, no clouds may form. Following the passage of a cold front in the Northern Hemisphere, westerly or northwesterly winds of 15 to 30 mph or more often continue for 12 to 24 hours.

Command Staff
The command staff consists of the information officer, safety officer, and liaison officer. They report directly to the incident commander (IC) and may also have assistant staff.

Complex
Two or more individual fire incidents located in the same general area which are assigned to a single incident commander or unified command.

Confinement
The strategy employed in appropriate management responses where a fire perimeter is managed by a combination of direct and indirect actions and use of natural topographic features, fuel, and weather factors.

Contain a Fire
A fuel break around the fire has been completed. This break may include natural barriers such as a river or road, or fire line built by hand, or fire line constructed mechanically.

Control a Fire
The complete extinguishment of a fire, including spot fires. Fire line has been strengthened to help ensure that flare-ups from within the perimeter of the fire will not break through the line.

Control Line
All built or natural fire barriers and treated fire edge used to control a fire.

Cooperating Agency
An agency supplying assistance other than direct suppression, rescue, support, or service functions to the incident's control effort (such as the Red Cross, law enforcement agency, telephone company, etc.).

Crew Boss
A person in supervisory charge of a crew—usually 16 to 21 firefighters—who is responsible for their performance, safety, and welfare.

Crown Fire
The movement of fire through the crowns or tops of trees or shrubs more or less independently of the surface fire. A fire is said to be "crowning" when the flames get up into the tops of trees and spreads.

Defensible Space
An area—either natural or human-made—where material capable of causing a fire to spread has been treated, cleared, reduced, or changed to act as a barrier between an advancing wildland fire and resources or lives at risk. In practice, defensible space is generally defined as an area of 30 feet or more around a structure that is cleared of flammable brush or vegetation or other fuels.

Direct Attack
Any treatment of burning fuels, such as by wetting, smothering, or chemically extinguishing the fire—or by physically separating burning fuels from unburned fuels.

Dispatch
The implementation of a command decision to move a resource or resources—such as crews, dozers, engines, or aircraft—from one place to another.

Dispatch Center
A facility from which resources are directly assigned to an incident.

Dispatcher
A staff person who receives reports of discovery and status of fires, confirms their locations, receives orders for resources and takes action to provide people and equipment needed for control, and sends them to the designated locations.

Division
Divisions are used to divide an incident into geographical areas of operation. Divisions are established when the number of resources exceeds the span-of-control of the operations chief. In the Incident Command System organization, a Division is located between the Branch and the Task Force or Strike Team.

Dozer
Any tracked vehicle with a front-mounted blade used for exposing mineral soil or constructing fire line or safety zones.

Dozer Line
Fire line constructed by a dozer.

Drought Index
A number representing the net effect of evaporation, transpiration, and precipitation in producing cumulative moisture depletion in deep duff or upper soil layers.

Dry Lightning Storm
Thunderstorm in which negligible precipitation reaches the ground. Also called a “dry storm”.

Emergency Conflagration Act
The Oregon Office of the State Fire Marshal assists and supports the Oregon fire service during major emergency operations through the Emergency Conflagration Act. This act can only be authorized by the Governor and is only used for fires that involve or threaten life and structures.
http://www.oregon.gov/osp/sfm/pages/conflagration_information_2007.aspx

Energy Release Component (ERC)
This is measurement of fire danger indices. Specifically, it is the computed total heat released per unit area (British thermal units per square foot) within the fire front at the head of a moving fire.

Engine
A ground vehicle providing specified levels of pumping, water, and hose capacity.

Engine Crew
Firefighters assigned to an engine. The Fire Line Handbook defines the minimum crew makeup by engine type.

Escape Route
A pre-planned and understood route firefighters can take to move to a safety zone or other low-risk area, such as an already burned area (commonly called "the black"), a previously constructed safety area, a meadow that won't burn, or a natural rocky area that is large enough to provide refuge without being burned.

Extended Attack Incident
A fire which has exceeded or is expected to exceed Initial Attack capabilities or prescription.

Extreme Fire Behavior
“Extreme” implies a level of fire behavior characteristics that ordinarily precludes methods of direct control action. One or more of the following are usually involved: high rate of spread, prolific crowning

or spotting, presence of fire whirls, a strong convection column. Predictability is difficult because such fires often exercise influence on their environment and behave erratically, sometimes dangerously.

Evacuation Orders
Level 1 Evacuation Order: "*Be Aware of the Situation—BE READY*". **Level 2 Evacuation Order**: *"Be Set to Evacuate—You Must Prepare to Leave at a Moment's Notice"*. **Level 3 Evacuation Order**: "*Evacuate Immediately—GO*".

Fire Behavior
The manner in which a fire reacts to the influences of fuels, weather, and topography.

Fire-Adapted Ecosystem
An ecosystem with the ability to survive and regenerate in a fire-prone environment.

Fire Behavior Forecast
A prediction of probable fire behavior, usually prepared by a Fire Behavior Analyst, in support of fire suppression or prescribed burning operations.

Fire Behavior Specialist
A person responsible to the Planning Section Chief for establishing a weather data collection system and for developing fire behavior predictions based on fire history, fuels, weather, and topography. (Also called "Fire Behavior Analyst".)

Fire Break
A natural or constructed barrier used to stop or check fires, or to provide a control line from which to work.

Fire Front
The part of a wildland fire in which continuous flaming combustion is taking place. Unless otherwise specified, the fire front is assumed to be the leading edge of the fire perimeter. In ground fires, the fire front may be mainly smoldering combustion.

Fire Intensity
A general term relating to the heat energy released by a fire.

Fire Line
A linear fire barrier that is scraped or dug to mineral soil after being cleared of all vegetation.

Fire Perimeter
The entire outer edge or boundary of a fire, which may contain within it substantial areas of unburned fuels.

Fire Storm
Violent convection caused by a large continuous area of intense fire. Often characterized by destructively violent surface in-drafts near and beyond the perimeter and sometimes by tornado-like whirls.

Fire Weather
Weather conditions that influence fire ignition, fire behavior, and suppression.

Flanks of a Fire
The parts of a fire's perimeter that are roughly parallel to the main direction of spread.

Flare-up
Any sudden acceleration of fire spread or intensification of a fire. Unlike a "blow-up", a flare-up lasts a relatively short time and does not radically change control plans.

Fuel
Combustible material. Includes vegetation such as grass, leaves, ground litter, plants, shrubs, and trees that feed a fire. ("**Dead Fuel**": typically consists of small to large diameter down and dead woody fuels, dead grasses and forbs, frost-killed leaves still attached to live stems, and surface litter such as fallen leaves and needles. The moisture content of dead organic fuels, expressed as a percentage of the oven dry weight of the sample, is controlled entirely by exposure to environmental conditions. "**Live Fuel**": consists of conifer needles, the twigs and leaves of shrubs [evergreen and deciduous], and green [live] grasses and forbs.)

Fuel Moisture
The quantity of moisture in fuels expressed as a percentage of the weight when thoroughly dried at 212 degrees Fahrenheit.

Fuels Reduction
Manipulation, including combustion or removal of fuels, to reduce the likelihood of ignition or to lessen potential damage and resistance to control. Often includes thinning or prescribed burning.

Geographic Area
A political boundary, designated by the wildland fire protection agencies, where these agencies work together in the coordination and effective utilization of fire management resources. Each Geographic Area includes a Geographic Area Coordination Center (GACC) that handles fire intelligence, information, ordering, and dispatch.

Haines Index
An atmospheric index used to indicate the potential for wildfire growth by measuring the stability and dryness of the air over a fire.

Hand Line
A fire line built with hand tools.

Head of a Fire
The portion of the fire having the fastest rate of spread.

Heavy Fuels
Fuels of large diameter—such as snags, logs, and large limb wood—that ignite and are consumed more slowly than flashy fuels.

Helibase
The main location within the general incident area for parking, fueling, maintaining, and loading helicopters. The helibase is usually located at or near the incident base.

Helispot
A temporary landing spot for helicopters.

Helitack
The use of helicopters to transport crews, equipment, and fire retardant or suppressant to the fire line during the initial stages of a fire. Helitack can also refer to personnel, as in "helitack crews".

Helitack Crew
A group of firefighters trained in the technical and logistical use of helicopters for fire suppression.

Holding Actions
Planned suppression actions required to achieve wildland fire management objectives.

Holding Resources
Firefighting personnel and equipment assigned to do all required fire suppression work following fire line construction but generally not including extensive mop-up.

Hose Lay
Arrangement of connected lengths of fire hose and accessories on the ground, beginning at the first pumping unit and ending at the point of water delivery.

Hotshot Crew
A highly trained and experienced fire crew used mainly to build fire line by hand. Hotshots—also called "Interagency Hotshot Crews" or "IHCs"—are national resources, also known as "Type 1 Crews".

Hotspot
A particular active part of a fire.

Hotspotting
Reducing or stopping the spread of fire at points of particularly rapid rate of spread or special threat, generally the first step in prompt control, with emphasis on first priorities.

Incident
A human-caused or natural occurrence, such as a wildland fire, tornado, hurricane, or major flood that requires emergency service action to prevent or reduce the loss of life or damage to property or natural resources.

Incident Action Plan (IAP)
The plan that contains objectives reflecting the overall incident strategy and specific tactical actions and supporting information for the next operational period on an incident. The plan may be oral or written. When written, the plan may have a number of attachments, including incident objectives, organization assignment list, division assignment, incident radio communication plan, medical plan, traffic plan, safety plan, fire weather, and incident maps.

Incident Command Post (ICP)
Location at which primary command functions are executed. The ICP is often co-located with the incident base or other incident facilities.

Incident Command System (ICS)
The combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure, with responsibility for the management of assigned resources to effectively accomplish stated objectives on an incident.

Incident Commander (IC)
The individual responsible for the management of all operations at the incident site. The IC is usually in charge of an incident management team, which may be national (Type 1) or regional or local (Type 2 or 3) and which includes a wide variety of resources and personnel.

Incident Management Team
The Incident Commander and appropriate general staff or command staff personnel assigned to manage an incident. Teams vary in size and experience and are assigned based on availability of the teams and complexity of the incident.

Incident Objectives
Statements of guidance and direction necessary for selection of appropriate strategy or strategies, and the tactical direction of assigned resources. Incident objectives are based on realistic expectations of what can be accomplished when all allocated resources have been effectively deployed.

InciWeb
The interagency all-risk incident web information management system provided by the U.S. Forest Service: http://inciweb.nwcg.gov/ .

Infrared Detection
The use of heat sensing equipment, known as "Infrared Scanners", for detection of heat sources that are not visually detectable by the normal surveillance methods of either ground or air patrols.

Initial Attack
The actions taken by the first resources on arrival at a wildfire to protect lives and property and prevent further expansion of the fire.

Large Fire
To be considered a "Large Fire", a wildfire must be at least 100 acres in timber or 300 acres in grass or brush.

Lead Plane
Aircraft used to make dry runs over a target area to check wind and smoke conditions and topography and to lead Air Tankers to targets and supervise their drops.

Mobilization
The process and procedures used by all organizations—federal, state, and local—for activating, assembling, and transporting all resources requested to respond to or support an incident.

Mop-Up
To make a fire safe or reduce residual smoke after the fire has been contained by extinguishing or removing burning material along or near the control line, including felling snags, or moving logs and large rocks so they won't roll downhill. Mop-up work is usually (but not always) handled by hand crews.

Multi-Agency Coordination (MAC)
MAC Group is a generalized term which describes the functions and activities of representatives of involved agencies and jurisdictions who come together to make decisions regarding the prioritizing of incidents and the sharing and use of critical resources. The MAC organization is not a part of the on-scene Incident Command System and is not involved in developing incident strategy or tactics.

Mutual Aid Agreement
Written agreement between agencies or jurisdictions in which they agree to assist one another upon request by furnishing personnel and equipment.

National Fire Danger Rating System (NFDRS)
A uniform fire danger rating system that focuses on the environmental factors that control the moisture content of fuels.

National Multi-Agency Coordinating Group (NMAC)
Through intergovernmental coordination, this group provides national wildland fire operations direction, prioritization, allocation, and oversight. NMAC roles and responsibilities include: Establishes national priorities among the Geographic Areas; directs, allocates or reallocates resources among or between Geographic Areas to meet national priorities; attempts to anticipate and identify future national fire management resource requirements; provides oversight of general business practices between NMAC and the Geographic Multi-Agency Coordination (GMAC) groups. NMAC membership: Bureau of Indian Affairs Fire Director; Bureau of Land Management Fire Operations Manager; U.S. Fish and Wildlife Service Fire Director; U.S. Forest Service Assistant Director, Operations; National Association of State Foresters' Fire Director; National Park Service Fire Director; U.S. Fire Administration Program Specialist.

National Wildfire Coordinating Group (NWCG)
A group formed under the direction of the Secretaries of Agriculture and the Interior that includes representatives of the U.S. Forest Service, Bureau of Land Management, Bureau of Indian Affairs, National Park Service, U.S. Fish and Wildlife Service, and National Association of State Foresters. The group's purpose is to handle coordination and effectiveness of wildland fire activities and provide a forum to discuss and resolve issues and problems of substantive nature. NWCG is the certifying body for all courses in the National Fire Curriculum.

Operational Period
The period of time scheduled for execution of a given set of tactical actions as specified in the Incident Action Plan. Operational periods can be of various lengths, although usually are not more than 24 hours.

Overhead
People assigned to supervisory positions, including Incident Commanders, command staff, general staff, directors, supervisors, and unit leaders.

Plume-Dominated
A wildland fire whose activity is determined by its convection column.

Point Protection
Placing Engines and Crews at specific high-value locations (individual or clusters of structures, power and communication infrastructure, etc.).

Preparedness Levels
The National Multi-Agency Coordination Group (NMAC) establishes "Preparedness Levels" throughout the calendar year to help ensure that firefighting resources are ready to respond to new incidents. These Preparedness Levels are dictated by fuel and weather conditions, fire activity, and resource availability. The five Preparedness Levels range from "I" to "V", with "V" being the highest level. Each Preparedness Level has specific management directions. As the Preparedness Levels rise, more federal and state employees become available for fire mobilization if needed.

Preparedness Level I
Minimal large fire activity is occurring nationally. Most Geographic Areas have low to moderate fire danger. There is little or no commitment of national resources.

Preparedness Level II
Several Geographic Areas are experiencing high to extreme fire danger. Wildland fire activity is increasing and large fires are occurring in one or more Geographic Areas. Minimal mobilization of resources from other Geographic Areas is occurring. There is moderate commitment of national resources with the potential to mobilize additional resources from other Geographic Areas.

Preparedness Level III
Two or more Geographic Areas are experiencing wildland or prescribed fire activities requiring a major commitment of national resources. Additional resources are being ordered and mobilized through the National Interagency Coordination Center. Type 1 and Type 2 Incident Management Teams are committed in two or more Geographic Areas and crew commitment nationally is at 50 percent.

Preparedness Level IV
Three or more Geographic Areas are experiencing incidents requiring Type 1 and 2 Incident Management Teams. Competition exists between Geographic Areas. Nationally, 60 percent of Type 1 and 2 IMTs and crews are committed.

Preparedness Level V

Geographic Areas are experiencing major incidents which have the potential to exhaust all agency fire resources. Eighty percent of Type 1 and Type 2 Incident Management Teams and crews are committed, as well as the majority of other national resources.

Prevention

Activities directed at reducing the incidence of fires, including public education, law enforcement, personal contact, and reduction of fuels hazards.

Rappelling

The technique of landing specially trained firefighters from hovering helicopters; involves sliding down ropes with the aid of hand-held friction-producing devices called "Genies." Rappellers are often deployed into remote areas where access is difficult (such as areas without roads or helicopter landing spots)—or too remote to allow effective deployment of firefighters without extended hiking time.

Rate of Spread

The relative activity of a fire in extending its horizontal dimensions—expressed as: a rate of increase of the total perimeter of the fire, as rate of forward spread of the fire front, or as rate of increase in area—depending on the intended use of the information. Rate of Spread is usually expressed in “chains” or acres per hour for a specific period in the fire's history.

Red Flag Warning

Alert issued by fire weather forecasters to warn personnel about an ongoing or imminent critical fire weather situation.

Relative Humidity (RH)

The ratio of the amount of moisture in the air to the maximum amount of moisture that the air would contain if it were saturated—the ratio of the actual vapor pressure to the saturated vapor pressure.

Remote Automated Weather Station (RAWS)

There are nearly 1,500 interagency RAWS strategically located throughout the United States. Their weather data assists land management agencies with monitoring air quality, rating fire danger, and providing information for research applications. Most of the stations owned by the wildland fire agencies are located where they can monitor fire danger. RAWS units collect, store, and forward data to a computer system at the National Interagency Fire Center in Boise, Idaho via the Geostationary Operational Environmental Satellite (GOES).

Resource Order

An order placed with Dispatch for firefighting or support resources, often initiated by the Incident Management Team on a fire.

Resources

1) Personnel, equipment, services, and supplies available, or potentially available, for assignment to fires or other incidents. 2) The natural resources of an area, such as timber, wildlife habitat, grasslands, watershed values, and recreational and other values.

Retardant

A substance or chemical agent that reduces the flammability of combustibles. Retardant application is generally via fixed-wing air tankers or helicopters, and is used to slow or retard the flames, often for pre-treatment of fuels prior to ground attack or other suppression activities or for slowing the spread or potential for spread of the fire.

Safety Zone
An area cleared of flammable materials used for escape in the event the fire line is outflanked or in case a spot fire causes fuels outside the control line to render the line unsafe. In firing operations, crews maintain a safety zone close at hand. Safety zones may also be constructed as integral parts of fuel breaks. They are greatly enlarged areas which can be used with relative safety by firefighters and their equipment in the event of a blow-up in the vicinity.

Severity Funding
Severity funding may be used to: temporarily increase or extend seasonal firefighting staff and resources; provide for extended use of aircraft or additional aircraft and resources; pay for standby and increased fire prevention activities. Regardless of the length of the severity authorization, funding activities shall be terminated when abnormal conditions no longer exist.

Single Resource
An individual, a piece of equipment (such as an engine) and its staff, or a crew or team of persons with an identified work supervisor.

Situation "Sit" Report
The daily "National Interagency Coordination Center Incident Management Situation Report" that details the national incident activity including Incident Management Teams, personnel and resources assigned to specific incidents.

Size Up
To evaluate a fire to determine a course of action for suppression.

Slash
Debris left after logging, pruning, thinning, or brush cutting. This can include logs, chips, bark, branches, stumps and broken understory trees or brush.

Slop-over
A fire edge that crosses a control line or natural barrier intended to contain the fire.

Smokejumper
A firefighter who travels to fires by aircraft and parachutes into the fire area.

Snag
A standing dead tree or part of a dead tree from which at least the smaller branches have fallen.

Spot Fire
A fire ignited outside the perimeter of the main fire by flying sparks or embers.

Spot Weather Forecast
A special forecast issued to fit the time, topography, and weather of a specific fire. These forecasts are issued upon request of the user agency and are more detailed, timely, and specific than regular zone forecasts.

Spotting:
Behavior of a fire producing sparks or embers that are carried by the wind and start new fires beyond the zone of direct ignition by the main fire.

Staging Area
Locations set up at an incident where resources can be placed while awaiting a tactical assignment on an available basis. Staging areas are managed by the operations section.

Strike Team
Specified combinations of the same kind and type of resources—such as a group of staffed engines—with common communications and a leader.

Torching
The ignition and flare-up of a tree or small group of trees, usually from bottom to top.

Type (Type 1, Type 2 etc.)
The capability of a firefighting resource in comparison to another type. Type 1 usually means a greater capability in power, size, or capacity. This can refer to type of engine, crew, or team.

Washington State Fire Service Mobilization Plan
The Washington State Fire Service Mobilization Plan is implemented to provide personnel, equipment, and other logistical resources from around the state when a wildland fire or other emergency exceeds the capacity of local jurisdictions. Only the fire chief of the local fire protection jurisdiction or fire chief's authorized representative has the authority to request this state fire services resource mobilization. The Washington State Patrol Fire Protection Bureau Office of the State Fire Marshal coordinates statewide fire service resources to support local firefighting efforts. http://www.wsp.wa.gov/fire/mobilization.htm

Water Tender
A ground vehicle capable of transporting water in the field, generally used to supply engines.

WildCAD
A GIS-based Computer-Aided Dispatch [CAD] system.

Wildland Fire
Any non-structure fire, other than prescribed fire, that occurs in a wildland area.

Wildland-Urban Interface
The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.

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VII. Appendices

Appendix A – Sage-Grouse Habitat and Rangeland Fires

"These actions are essential for conserving habitat for the greater sage-grouse as well as other wildlife species and economic activity, such as ranching and recreation, associated with the sagebrush-steppe ecosystem in the Great Basin region. This effort will build upon the experience and success of addressing rangeland fire and broader wildland fire prevention, suppression and restoration efforts to date, including the National Cohesive Wildland Fire Management Strategy, and ensure improved coordination with local, state, tribal, and regional efforts to address the threat of rangeland fire at a landscape-level."

Section 1: Purpose
Secretarial Order 3336 on
Rangeland Fire Prevention, Management,
and Restoration

Department of the Interior Order Addresses Rangeland Fire and Sagebrush Landscapes

Because public lands make up roughly half of the remaining sage-grouse habitat, management decisions by the Bureau of Land Management and the U.S. Forest Service are critical.

On January 5, 2015, the Department of the Interior Secretary Sally Jewell signed Secretarial Order 3336 on Rangeland Fire Prevention, Management, and Restoration.

The purpose of this Secretarial Order was to set forth enhanced policies and strategies for preventing and suppressing rangeland fire and for restoring sagebrush landscapes impacted by fire across the West.

Wildland fire represents the greatest threat to sage-grouse habitat across the West. Secretarial Order 3336 calls for the implementation of a comprehensive strategy to maintain this species and its habitat.

The Secretarial Order sets in motion actions to:

- Enhance the protection, conservation, and restoration of a healthy sagebrush-steppe ecosystem, and
- Address important public safety, economic, cultural, and social concerns.

Specifically, Secretarial Order 3336 required agencies to develop short-term plans to address fire mitigations before the 2015 fire season.

Implementing Sage-Grouse Conservation Actions
Greater sage-grouse habitat covers 165 million acres across 11 states in the West—representing a 56 percent loss in habitat from the species' historic range. At one time, the greater sage-grouse population

likely numbered in the millions, but is estimated to have now dwindled to 200,000 to 500,000 individuals range-wide.

Because public lands make up roughly half of the remaining sage-grouse habitat, management decisions by the Bureau of Land Management and the U.S. Forest Service are critical.

The Bureau of Land Management, in cooperation with the U.S. Forest Service and its partners, has finalized and approved a series of land use plans for the areas they manage. These plans all anticipate ongoing relationships with cooperators and partners in designing and implementing greater sage-grouse conservation actions.

Habitat Management Areas
The plans focus on conserving "Priority Habitat Management Areas" that have been identified as having the highest value for maintaining the sage-grouse species and its habitat. Land use measures in Priority Habitat are designed to minimize or avoid habitat disturbance. These plans also designate "General Habitat Management Areas". These lands, located outside of Priority Habitat Management Areas, require special management to protect and sustain greater sage-grouse populations—but permit more flexible management and resource development.

Greatest Threat to Sagebrush Habitat: Fire
Experts have identified fire as one of the greatest threats to sagebrush habitat. In response to this threat, the Secretarial Order calls for a comprehensive, science-based strategy to reduce the threat of large-scale rangeland fire to habitat for the greater sage-grouse and the sagebrush-steppe ecosystem.

This would occur through effective rangeland management (including the appropriate use of livestock), fire prevention, fire suppression, and post-fire restoration efforts at a landscape scale.

In addition, this strategy will fight the spread of cheatgrass and other invasive species that exacerbate fire risk and intensity, position wildland fire management resources for more effective initial attack, and accelerate the restoration of fire-impacted landscapes to native grasses and sagebrush.

The strategy, which is already being implemented, also includes training for local volunteers and Rangeland Fire Protection Associations, increased recruitment of veterans for fire crews, improving dispatch plans and the positioning of firefighting assets, as well as other operational elements intended to better protect and conserve crucial habitat.

Implementation of Strategy Called for by the Secretarial Order
Many elements of this strategy are implemented through the Bureau of Land Management/U.S. Forest Service plans, including:

- Interagency, landscape-scale assessments to prioritize at-risk habitat and identify priorities for fuels management, preparedness, suppression and restoration based on the quality of habitat at risk from loss to fire;
- Annual treatment and fire management programs to be developed in coordination with interagency partners, states and other partners across jurisdictional and ownership boundaries based on priorities identified in the landscape-scale assessments; and
- Development of strategies to check the spread of rangeland fires where they occur to protect larger, intact blocks of habitat.

Cooperative Implementation
The plans will now be implemented by the Bureau of Land Management and U.S. Forest Service in close coordination with state and local partners, as well as through the continued collaboration with local working groups and the Sage-Grouse Taskforce.

The Sage-Grouse Taskforce works to identify and implement high-priority conservation actions. Formed by the Western Governors Association, it includes designees from the 11 western states as well as representatives from: the U.S. Fish and Wildlife Service, Bureau of Land Management, Natural Resources Conservation Service, U.S. Forest Service, U.S. Geological Survey, and the Department of the Interior.

2015 Wildfires Impacted Sage-Grouse Habitat

The 2015 wildfires in the Pacific Northwest Region contributed to the further degradation and fragmentation of sage-grouse habitat.

In Oregon, fires impacted a total of 153,142 acres of sage-grouse habitat. These acres included the following habitat management areas:

Very High Priority Habitat – Less than 1 acre

High Priority Habitat – 74,343 acres

General Priority Habitat – 78,798 acres

The incidents that impacted this habitat included the Bendire Complex, Eldorado, Leslie Gulch, and Cornet-Windy Ridge fires. The Corner Creek Fire interacted with several fuel treatments that aided in control of this wildfire and helped prevent it from burning into sage-grouse habitat.

Appendix B – Fire Prevention and Mitigation

"There is an old adage that the best way to stop a wildfire is to make sure it never starts. Wildfire prevention programs form an important component of any comprehensive wildfire management strategy. Ranging from the familiar Smokey Bear public education campaign to focused law enforcement, prevention efforts target those sources of human ignitions that can be avoided, including arson, debris burning, campfires, smoking, off-road vehicle use, and others. The degree to which human-caused ignitions contribute to wildfire is substantial. Nationwide, human ignitions (everything except lightning) accounted for nearly 75 percent of all wildfires starts."

The 2015 National Cohesive Wildland Fire Management Strategy

Preventing Human-Caused Wildfires in the Pacific Northwest Region

Throughout the winter of 2014-2015, drought conditions worsened in many areas in the Pacific Northwest Region. Fuel conditions in general around the Region were well ahead of historical trends. The Northwest Coordination Center's Predictive Services Unit indicated that these conditions would extend throughout the summer and likely into the fall. These predictions helped to elevate the emphasis on preventing human-caused wildfires in the Pacific Northwest Region.

The Fire Prevention effort put forth in 2015 by the Bureau of Land Management and U.S. Forest Service in the Pacific Northwest was unprecedented. In addition, individuals and communities took responsibility for their properties and provided fire prevention messaging through the Firewise program (Firewise.org).

The Forest Service and Bureau of Land Management augmented their existing Fire Prevention programs by bringing in Fire Prevention and Education Teams. This effort extended to include guidance and input from the Pacific Northwest Wildfire Coordinating Group (PNWCG) Communication Prevention and Investigation Committee (CPIC). The PNWCG includes eleven partner agencies that collaborate on wildland fire management issues.

Between June 2015 and the end of September 2015, seven Fire Prevention and Education Teams successfully implemented a combination of strategies and tactics, providing information to raise awareness of wildfire issues by enlisting the public's support and actions for creating safer communities.

These efforts focused on analyzing the existing Fire Prevention program and identifying needs to better serve partner agencies and the public. One component identified early on was a need to provide the best "fire cause" data available. The Fire Prevention and Education Teams facilitated the development of fire-cause data into maps and tables to identify patterns in specific areas and to aid in the overall planning strategy for the Region. Such key analysis of when and where fires occurred helped planners and partners efficiently focus their fire prevention efforts.

A. Fire-Adapted Communities

Beginning with the 2014 fire season, Fire Prevention and Education Teams worked to help the State Office/Regional Office (Bureau of Land Management/U.S. Forest Service) prevent human-caused fires in the Pacific Northwest under the umbrella of the National Cohesive Wildland Fire Management Strategy's emphasis on Fire-Adapted Communities (FAC). This effort was "branded" for the Pacific Northwest using the "PNWFAC" logo (see image below), as well as through the PNWFAC website that provided resources to help support and maintain Fire-Adapted Communities across the Pacific Northwest.

Opening a Vital Conversation

Building on last year's efforts, the 2015 fire season's Fire Prevention and Education Teams continued to incorporate community fire adaptation into their work.

In July, a national team worked in Wenatchee with the new Washington Fire-Adapted Community Learning Network to incorporate and embrace the network's efforts, building a strong link between FAC concepts and activities to target specific human fire causes.

These efforts have opened a conversation about the community cycle of "Prevent, Prepare, Respond and Recover" and resulted in recommendations from the national team on future messaging and collaboration.

B. Media Outreach

One key objective of the Fire Prevention and Education Teams was to "mass market" the awareness of drought conditions and high fire danger. The various teams' media strategy focused on radio, television, and newspapers. Four audio and three video Public Service Announcements (PSAs) that underscored the drought conditions and campfire awareness were scripted and professionally recorded. These PSAs were distributed to more than 200 media contacts.

On July 24, a "Media Day" was arranged that focused on drought conditions and clarified fire restrictions in dispersed versus developed campsites. Reporters from two television stations (King 5 and Fox 13) and one newspaper (Mason County Journal) covered this event, held in Washington's Olympic National Forest.

A social media strategy was developed to increase awareness of Fire-Adapted Community issues. A total of 150 tweets were developed on human-caused wildfires in the Pacific Northwest and on protecting sage-grouse habitat. Fifty-one twitter graphics were created to help spotlight these twitter messages. Analytics have demonstrated that such images increase social engagements.

A Campaign of Custom Flyers

During the fall mushroom seasons on the Deschutes, Fremont-Winema, Umpqua, and Willamette national forests, a history of smoking and campfire-caused wildfires was identified.

Therefore, in 2015, these Forests received custom flyers that incorporated specially designed and translated materials.

Using a national translation service, the Fire Prevention and Education Team was able to produce flyers in six languages. These products were provided to the aforementioned national forests to be further distributed by this effort's key partner, the Alliance of Forest Workers.

This custom flyer (on right) was written in Lao to best connect with this key audience.

C. Training and Development

An important emphasis of the Regional Fire Prevention program is building Fire Education and Prevention capacity across all agencies and regions in both Oregon and Washington.

This effort's main conceptual intention is to: 1) Generate interest and participation through training and field experience; 2) Build a larger pool of qualified members and leaders to utilize within the Region; while 3) Simultaneously building skills and contacts to help with local, year-round fire prevention programs.

In 2015, the Pacific Northwest Region supported individuals with formal training in Fire Prevention as well as on-the-job training opportunities with Fire Prevention Teams.

D. Protecting Sage-Grouse Habitat

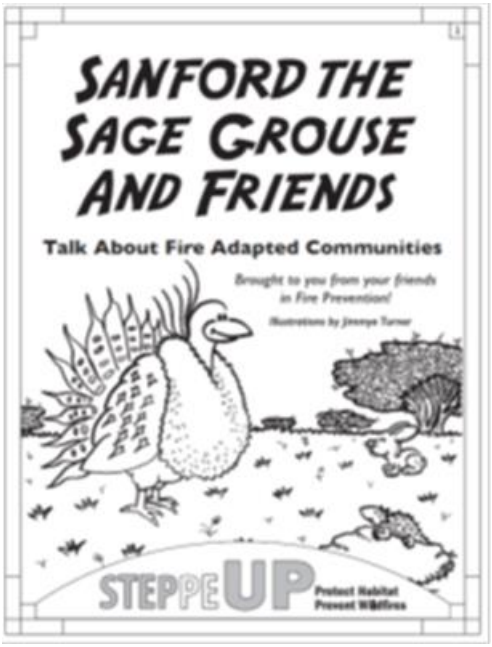
Several of the Pacific Northwest Region's Fire Prevention and Education Teams have helped develop the "Steppe Up – Protect Our Sage Community" campaign. This awareness campaign is designed to inspire action through raising awareness on the critical loss of this significant habitat that is attributed to human-caused wildfires in sagebrush ecosystems.

Public Service Announcements aired in Oregon's Bend, Klamath Falls, Lakeview, and Umatilla media markets. Approximately 80 sagebrush ecosystem educational tweets were prepared for year-round release.

Pictures, links and #hashtags have been developed to generate interest and direct followers to resources for learning more about how they can become part of the solution.

A 12-page coloring book (see cover on right) has been developed to stimulate young elementary school minds and provoke a desire to learn. In addition, this book is designed to generate family conversation about the sagebrush community and how human-caused wildfires can quickly destroy animal habitats.

A set of 14 trading cards has also been crafted that features photographs and illustrations of the wide spectrum of animals that depend on the sagebrush community. Each card has a unique fire prevention tip on the back.



E. Drones

A regional drone awareness campaign—targeted at drone users—was launched in July 2015.

Drones have become a serious safety concern for wildfire incidents. These objects have compromised firefighter safety and shut down wildfire air operations.

The Fire Prevention and Education Teams coordinated with Fire and Aviation Management staff on specific needs. Four new display banners (see image on left) were designed and featured at three Oregon events: the Madras Air show, the Prospect Search and Rescue Fly-In, and the Merlin Airport Days. Fire prevention and Education Teams had the potential to reach 12,000 people at these events.

F. Updated, Featured Graphics

The PNWCG Communication Prevention and Investigation Committee recognized the need to update existing graphics and develop new graphic products to help support ongoing fire prevention efforts. More than 15 product themes were created, covering prevention messaging on vehicle-caused fires, campfires, shooting fires, sagebrush habitat effects, fireworks, burn piles, field burning, drones, and home preparedness. These graphics are featured in a variety of file formats and resolutions for different product applications (from billboards to newsletters). A select few have been translated from English to Spanish (see below).

These graphics and more can be downloaded and customized for Forests and partner agencies at:
http://ftp.nifc.gov/incident_specific_data/pacific_nw/!SORO/Prevention/

G. Fire Restrictions Messaging

During the 2015 fire season, one Fire Prevention and Education Team focused on effective outreach messaging to reduce confusion regarding the restriction of activities in high fire-prone areas, while allowing these same activities in less fire-prone or hazardous areas.

The team's goal was for agencies and internal audiences to interpret and deliver messaging to the public in easily understandable language. An outreach toolbox was developed that defines the process of establishing and implementing fire restrictions and closures through graphic products, templates, and examples.

This outreach toolbox can easily be reconfigured to effectively promote any Forest's fire restriction and closure messaging.

The toolbox includes tips and tools for creating awareness, educating specific audiences, and motivating positive behavior change. An array of materials has been designed, including:

- Graphics (posters, flyers, and handouts)
- Outreach tools (press releases, Public Service Announcements, talking points)
- Sample templates of Fire Restriction Orders, Delegations, and Authority-Mandates

(A variety of these resources can be found on the electronic graphics warehouse website link [provided above].)

"The Fire Prevention and Education Teams were a great addition to our program this year. Their accomplishments were remarkable. I'm looking forward to having them back next season."

Denise Blankenship, Assistant Director
Fire Integration, Pacific Northwest Region
U.S. Forest Service

H. Firewise Communities

The Firewise program (Firewise.org), co-sponsored by the U.S. Forest Service, the U.S. Department of the Interior, and the National Association of State Foresters, encourages local solutions for fire safety by involving homeowners in taking individual responsibility for preparing their homes from the risk of wildfire.

In 2013, the small community of Pine Creek, Oregon, came together to make their community "Firewise." Using "Firewise" components as a guide, the Pine Creek neighbors began making their homes and property more defensible from the impacts of wildfire. This work included pruning, mowing, thinning trees, clearing flammable materials away from homes and improving access routes by clearing away dense vegetation.

Pine Creek residents even built a bridge to provide an emergency ATV route across a creek. In addition, they located water sources and set up sprinklers where it made sense.

On August 26, 2015, the Canyon Creek Complex Fire *burns into the Pine Creek drainage on the north flank of the Strawberry Wilderness. Fire officials credit preparation by homeowners and fire crews in advance of the fire for saving many of the homes in the Pine Creek community area. The home of Tye and Jenny Rookstool—shown here—was among these homes that were spared from the approaching fire front due to their previous efforts to fireproof their homes in this fire-prone area. Photo by Todd McKinley/Grant County Sheriff's Office.*

Preplanning By Pine Creek Residents Saves Homes from Canyon Creek Complex Fire

On August 26, 2015, gusty southwest winds pushed the Canyon Creek Complex Fire out of the Strawberry Mountain Wilderness toward the small, dispersed community of Pine Creek.

The Grant County Sheriff's Office made the call in the early afternoon to evacuate residents.

Pine Creek residents organized to prepare and implement the Firewise plan. Together, they learned fire behavior, fire-proofing techniques and evacuation tips. They also became familiar with the different evacuation levels to help them be prepared to evacuate—not just for themselves, but also for pets and livestock.

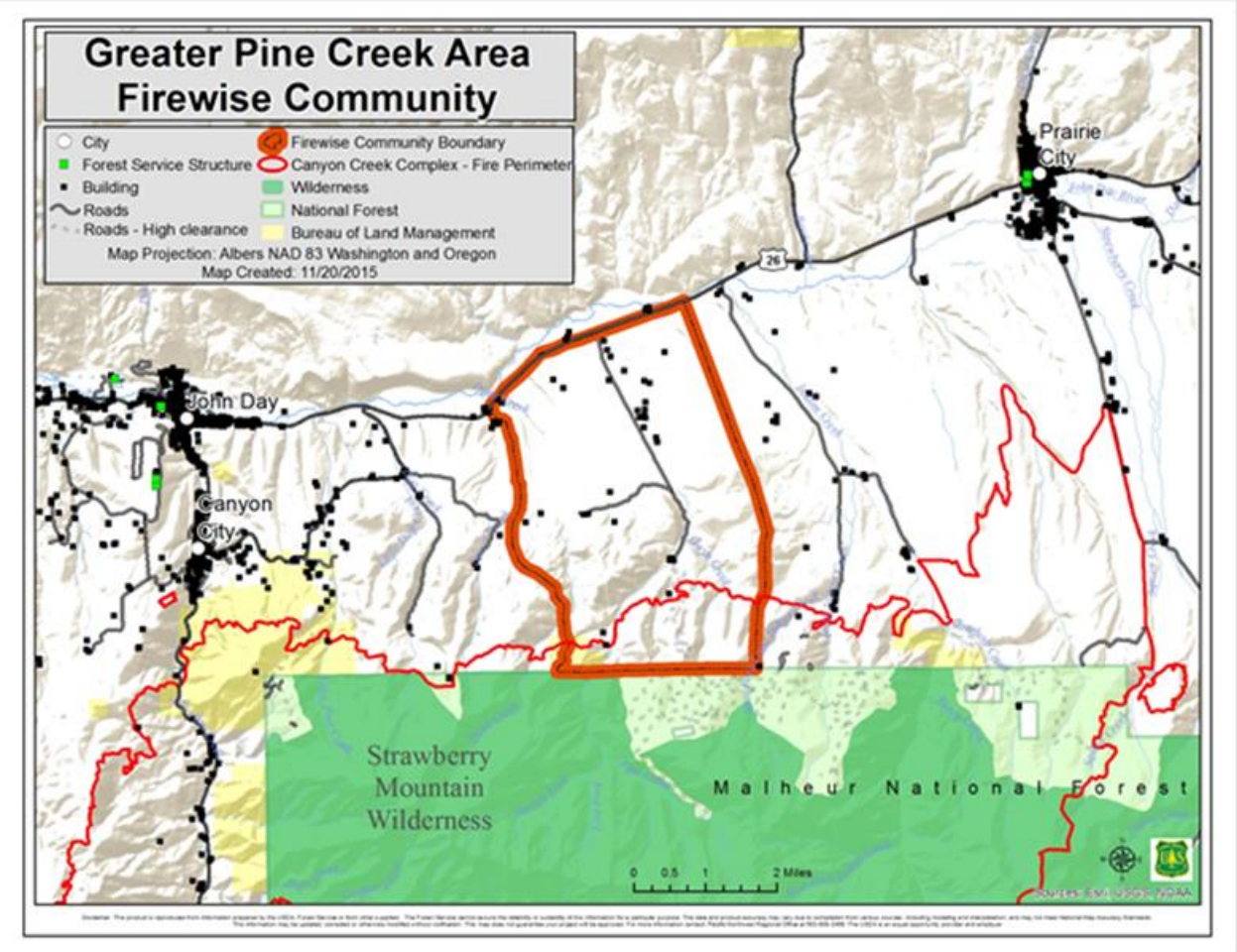
V I D E O

Grant County, Oregon also contracted with local filmmakers to make a video to help residents prepare for wildfire. The video highlights the five seasons: Fall, Winter, Spring, Summer and Fire Season.

http://www.livingwithwildfire.com/Video.html

"The work homeowners did to make their community "Firewise" helped the survivability of the homes. It was the combination of fuel treatments around homes and fire resistant building materials (metal roofs, concrete plank siding, composite decking etc.) that contributed to saving many homes in this community."

Roy Walker
Fire Management Officer
Malheur National Forest



Appendix C – The Use of Technology in Support of the 2015 Pacific Northwest Fires

Numerous technologies and resources were used in support of fire management efforts during the 2015 fire season. This section describes the approach and use of these beneficial tools and products.

The Pacific Northwest Region maintains a high level of qualified analysts and planners. These individuals function as Long Term Analysts (LTAN), Fire Behavior Analysts (FBAN), Geospatial Analysts (GSAN), Strategic Operational Planners, and Wildland Fire Decision Support System (WFDSS) Technical Specialists. During the 2015 fire season, the Region was able to place analysts on site at all of the regionally significant fires and complexes.

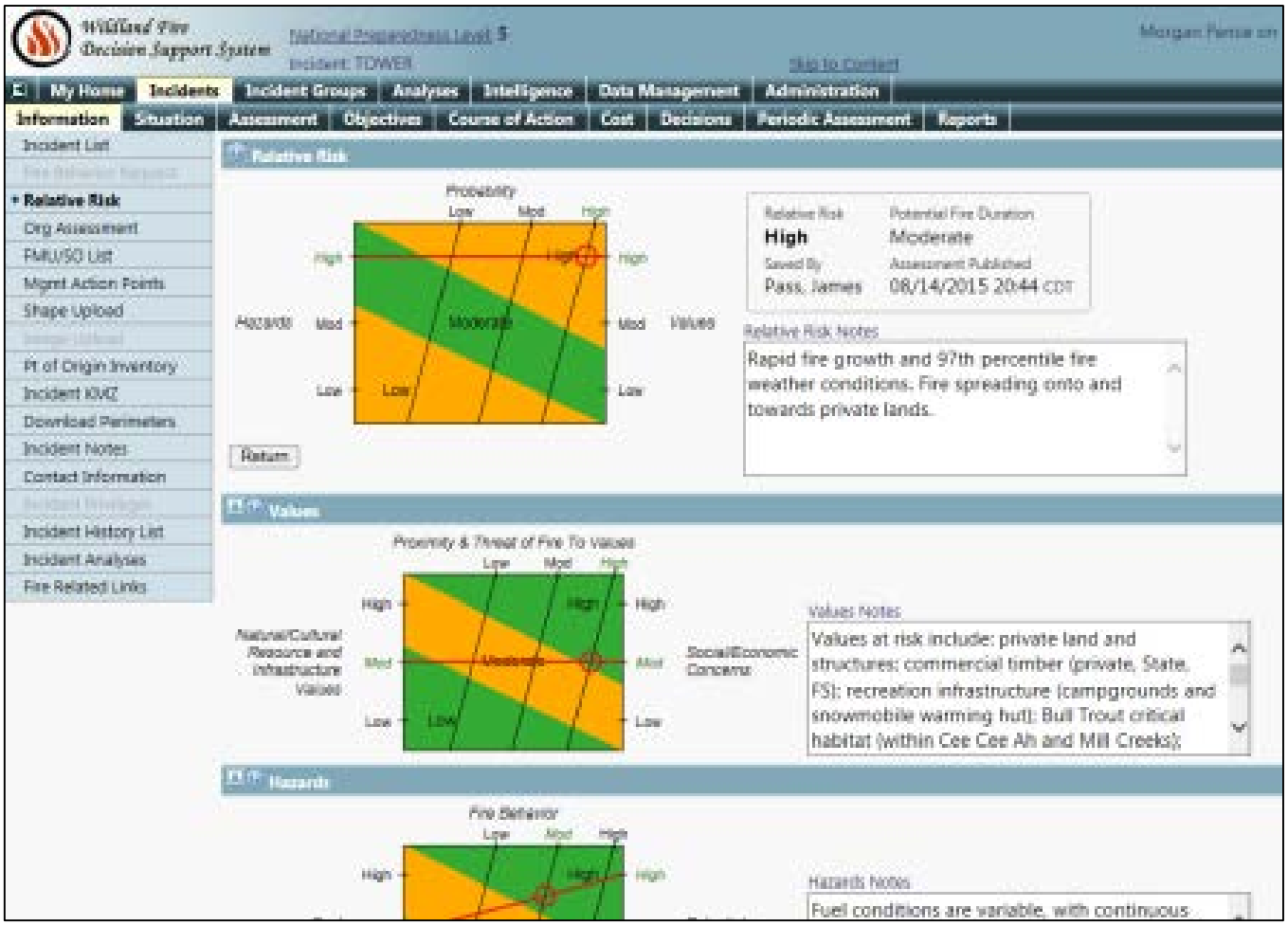
At the height of the fire season, the Regional Fire Analyst remained at regional headquarters to provide information and briefings to the Multi-Agency Coordination (MAC) group and agency executives regarding needs, priorities, weather, and threats to values as the situation evolved and changed. As needed, the Regional Fire Analyst also hosted conference calls and disseminated information with on-scene analysts to understand concerns/needs and exchange information. In addition, this information sharing provided the opportunity to discuss the status of the current situation regarding weather, fire behavior/safety alerts, and useful tools/resources.

The Northwest Geographic Area Coordination Center (GACC) provided critical situation awareness to the Region regarding fire/fuels analyses and weather/climate outlooks. The GACC fire analyst and meteorologists communicated with Incident Commanders daily to support their efforts. In addition, GACC meteorologists communicated daily with the National Weather Service forecast offices and Incident Meteorologists, ensuring knowledge sharing and communication. The GACC fire analyst also supported the network of FBANs/LTANs/GSANs on incidents regarding incident needs, pertinent fire behavior, and weather information. An example of the products that were provided include:

http://gacc.nifc.gov/nwcc/content/pdfs/FBOutlook.pdf
http://gacc.nifc.gov/nwcc/content/products/fwx/guidance/DL.pdf

Tools and Products

- **Wildland Fire Decision Support System (WFDSS):**
  http://wfdss.usgs.gov/wfdss/WFDSS_Home.shtml
  - Utilized to assess risk and values, create incident objectives and courses of action consistent with land management plans, model fire behavior, and create decisions to provide direction to fire managers/Incident Management Teams. (See computer screen capture on next page showing the Relative Risk Assessment within the Wildland Fire Decision Support System on the Tower Fire.)



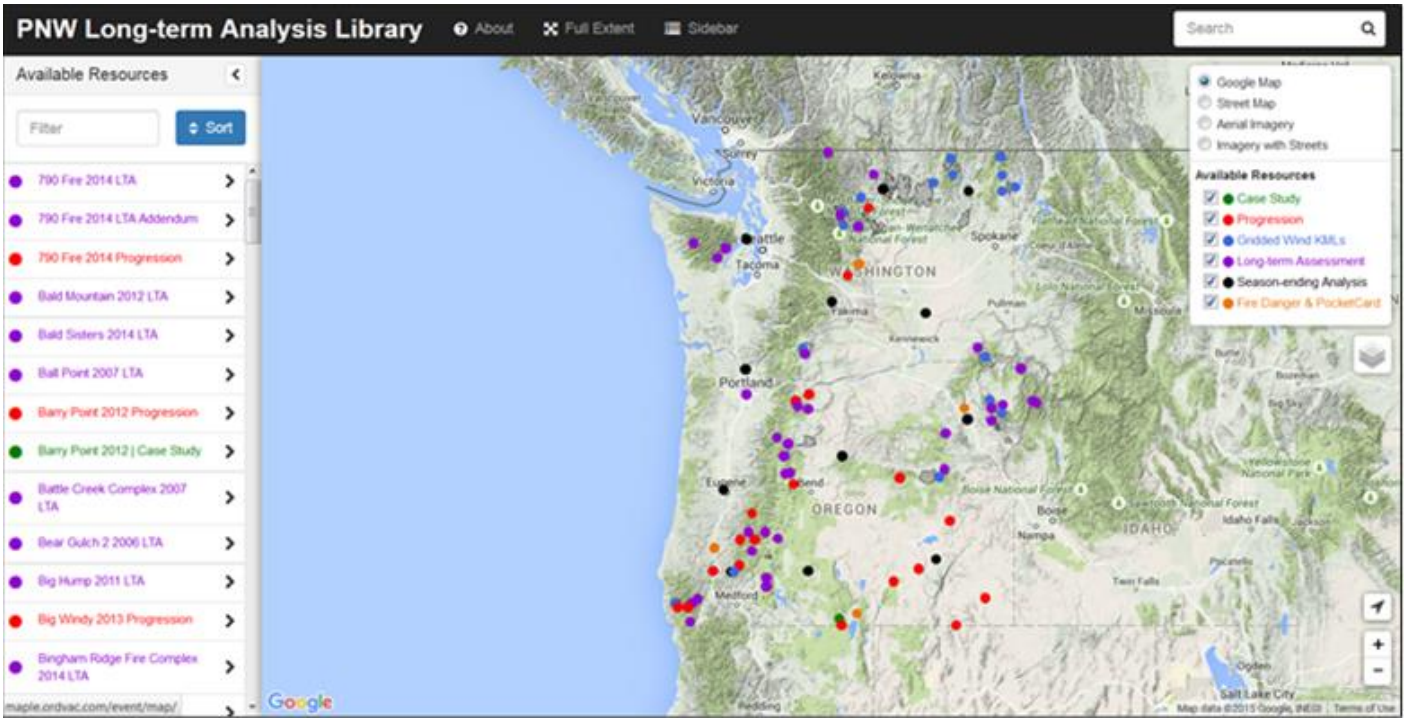
- Fire modeling in the Pacific Northwest Region was used during the 2015 fire season (see table below). From June 1 through September 30, a total of 509 analyses were completed in the Northwest Geographic Area (includes all agencies and partner use).

Model Used	# of runs completed
Fire Spread Probability (FSPro)	254
Near Term Fire Behavior (NTFB)	147
Short Term Fire Behavior (STFB)	82
Basic Fire Behavior	7
Total	490

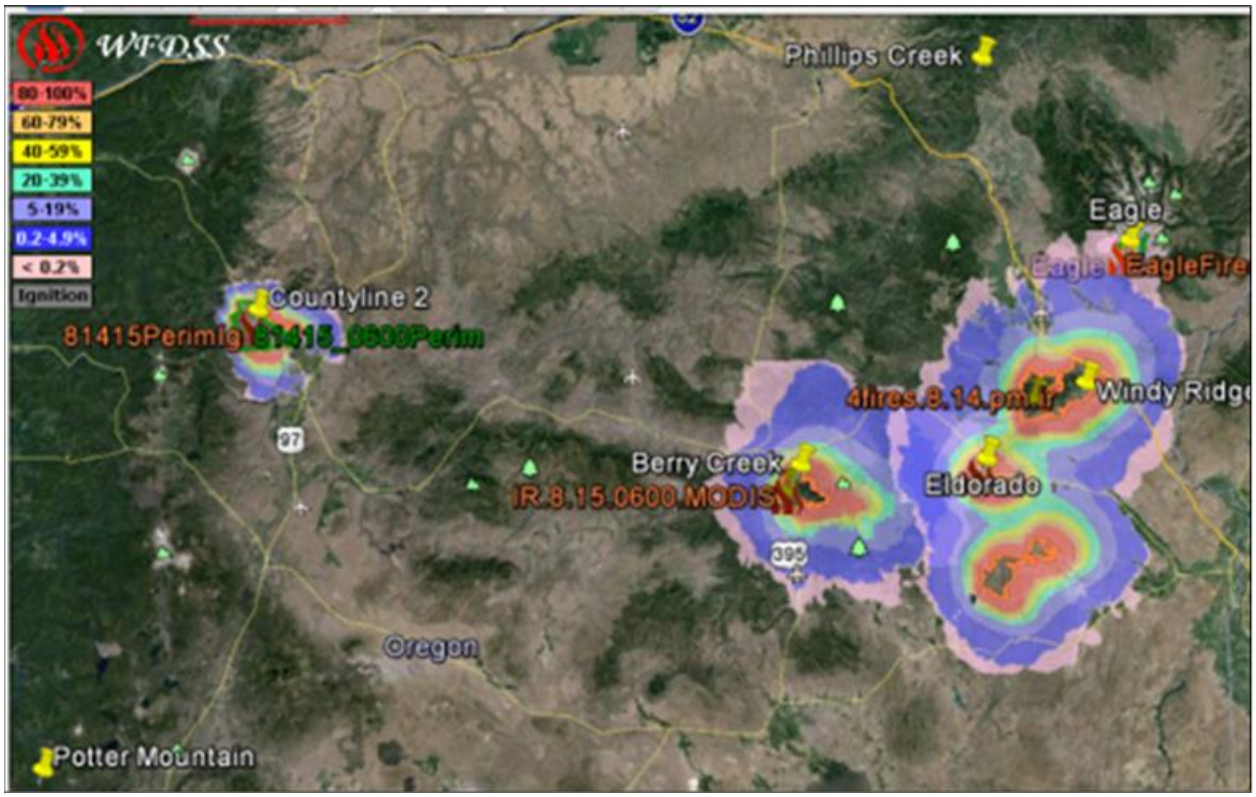
- Fire Spread Probability (FSPro) simulates thousands of fires using forecasted and historical weather. The output shows the probability of fire growth for a given period of time, often 7, 14, or 21 days. It is often used to assess risk of impacts to values at risk.
- Near Term Fire Behavior (NTFB) simulates fire growth using a predicted weather forecast, typically for a 3-5 day period. Output is useful for assessing potential fire impacts in the near term as well as some fire behavior characteristics such as flame length and rate of spread.

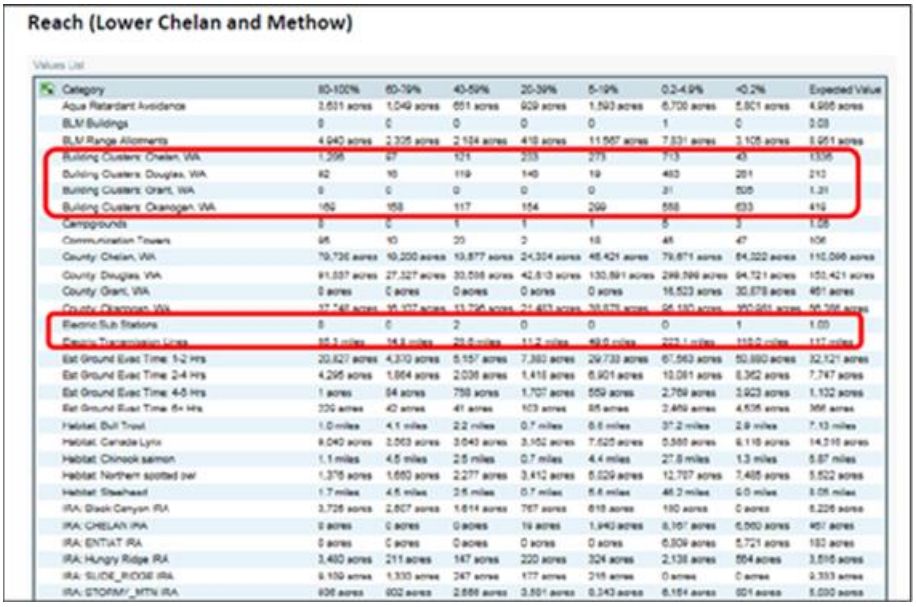
- Short Term Fire Behavior (STFB) simulates fire behavior and growth under one weather and fuel scenario. Output is useful for assessing possible spread under a specific weather condition and the associated fire behavior (such as a cold front).
- Basic Fire Behavior provides the fire behavior characteristics for an area under one weather and fuel scenario. Output is useful for assessing the fire behavior (flame length, rate of spread, crown fire, 1-hour fuel moisture, etc.) under a specific weather condition.

- **PNW Long Term Analysis Library: http://maple.ordvac.com/event/map/**
  - Created to provide a spatial display of current and historical regional resources for: Long Term Assessments, Season-Ending Analysis, Fire Danger & Pocketcards, Fire Progressions, Case Studies, and Gridded Wind KML Library. ("KML" is "Keyhole Markup Language" which is a file type used by Google Earth.)



- **Fire Spread Probability (FSPro) and associated Values at Risk (VAR).**
  - Created to provide assessment and situation in a consistent manner for area fires (including visual map and VAR [Values at Risk] tables shown on next page). Provided as a PDF and Google Earth KMZ.



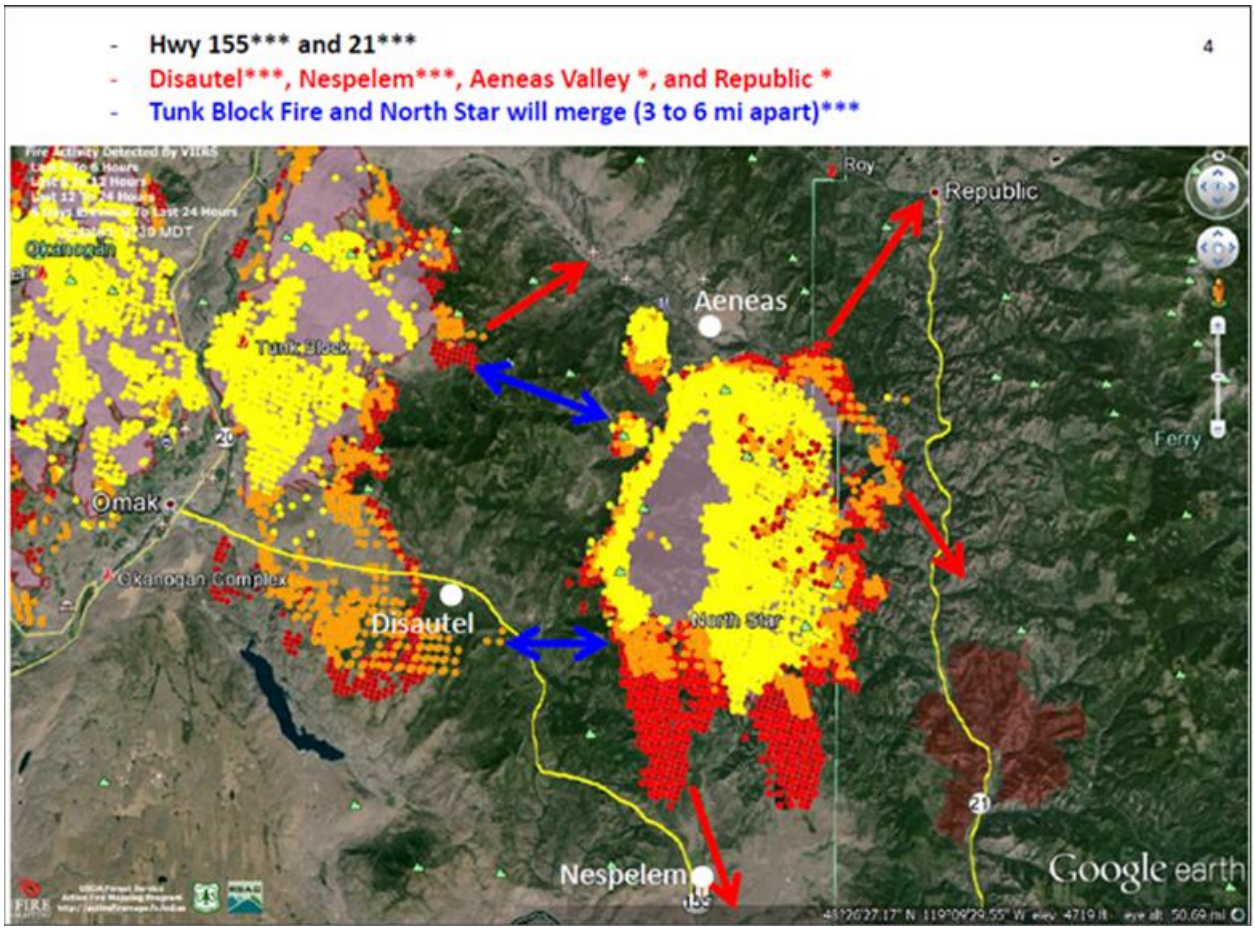

Reach (Lower Chelan and Methow)

Category	80-100%	60-79%	40-59%	20-39%	5-19%	0.2-4.9%	<0.2%	Expected Value
Aqua Retardant Avoidance	3,651 acres	1,049 acres	651 acres	929 acres	1,593 acres	6,708 acres	5,801 acres	4,966 acres
BLM Buildings	0	0	0	0	0	1	0	0.09
BLM Range Allotments	4,940 acres	2,335 acres	2,184 acres	418 acres	11,567 acres	7,831 acres	3,105 acres	3,951 acres
Building Clusters: Chelan, WA	1,298	87	121	233	275	713	43	1356
Building Clusters: Douglas, WA	62	10	119	140	19	463	201	213
Building Clusters: Grant, WA	0	0	0	0	0	31	505	1.31
Building Clusters: Okanogan, WA	162	158	117	154	299	558	633	419
Campgrounds	8	0	1	1	1	5	3	1.58
Communication Towers	95	10	20	3	18	48	47	106
County: Chelan, WA	79,736 acres	19,200 acres	13,877 acres	24,304 acres	48,421 acres	79,671 acres	84,222 acres	110,096 acres
County: Douglas, WA	91,037 acres	27,327 acres	30,556 acres	42,613 acres	130,891 acres	299,596 acres	94,721 acres	150,421 acres
County: Grant, WA	0 acres	0 acres	0 acres	0 acres	0 acres	16,523 acres	30,678 acres	461 acres
County: Okanogan, WA	37,745 acres	35,107 acres	13,796 acres	21,483 acres	39,875 acres	96,180 acres	350,961 acres	99,286 acres
Electric Sub Stations	0	0	2	0	0	0	1	1.09
Electric Transmission Lines	35.1 miles	14.8 miles	29.6 miles	11.2 miles	49.0 miles	222.1 miles	118.0 miles	117 miles
Est Ground Evac Time: 1-2 Hrs	20,627 acres	4,370 acres	5,157 acres	7,380 acres	29,733 acres	67,563 acres	50,880 acres	32,121 acres
Est Ground Evac Time: 2-4 Hrs	4,295 acres	1,864 acres	2,036 acres	1,418 acres	6,901 acres	10,061 acres	8,362 acres	7,747 acres
Est Ground Evac Time: 4-6 Hrs	1 acres	84 acres	758 acres	1,707 acres	559 acres	2,769 acres	3,923 acres	1,132 acres
Est Ground Evac Time: 6+ Hrs	336 acres	40 acres	41 acres	103 acres	85 acres	2,469 acres	4,506 acres	366 acres
Habitat: Bull Trout	1.0 miles	4.1 miles	2.2 miles	0.7 miles	6.6 miles	37.2 miles	2.9 miles	7.10 miles
Habitat: Canada Lynx	8,040 acres	3,063 acres	3,043 acres	3,162 acres	7,625 acres	9,560 acres	6,110 acres	14,216 acres
Habitat: Chinook salmon	1.1 miles	4.5 miles	2.5 miles	0.7 miles	4.4 miles	27.8 miles	1.3 miles	5.87 miles
Habitat: Northern spotted owl	1,376 acres	1,660 acres	2,277 acres	3,412 acres	5,029 acres	12,707 acres	7,485 acres	5,522 acres
Habitat: Steelhead	1.7 miles	4.6 miles	2.6 miles	0.7 miles	5.6 miles	46.2 miles	0.0 miles	8.05 miles
IRA: Black Canyon IRA	3,726 acres	2,607 acres	1,614 acres	767 acres	618 acres	160 acres	0 acres	5,226 acres
IRA: CHELAN IRA	0 acres	0 acres	0 acres	19 acres	1,940 acres	6,167 acres	6,560 acres	457 acres
IRA: ENTIAT IRA	0 acres	0 acres	0 acres	0 acres	0 acres	6,309 acres	5,721 acres	183 acres
IRA: Hungry Ridge IRA	3,460 acres	211 acres	147 acres	220 acres	324 acres	2,138 acres	554 acres	3,516 acres
IRA: SLIDE_RIDGE IRA	6,159 acres	1,330 acres	247 acres	177 acres	216 acres	0 acres	0 acres	9,333 acres
IRA: STORMY_MTN IRA	606 acres	602 acres	2,666 acres	3,501 acres	8,343 acres	6,164 acres	601 acres	5,000 acres

These two screen captures show the Fire Spread Probability output for multiple fires and the table shows the Values at Risk and how likely they will be affected by the fire.

- **Assessment of PNW Communities and Major Travel Corridors at Risk.**
    - A rapid assessment of the threats to communities and major travel corridors in the Pacific Northwest given predicted weather. Created and updated to inform priorities for MAC and agency executives. Product displayed Google Earth backdrop with current VIIRs/MODIS heat signature overlay of area fires. ("VIIRs" is "Visible Infrared Imaging Radiometer Suite". "MODIS" is "Moderate-Resolution Imaging

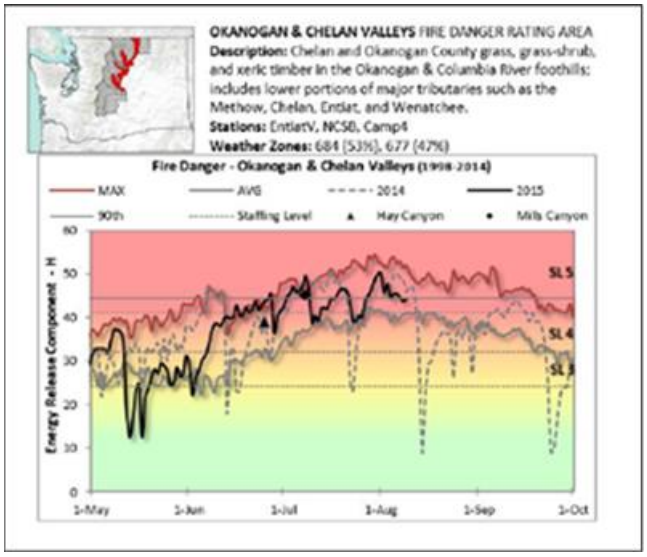
Spectroradiometer". Both are instruments on a satellite, indicating that this is satellite-detected data.) Projected wind and resultant fire behavior/spread potential indicated with arrows with distances to communities and corridors.



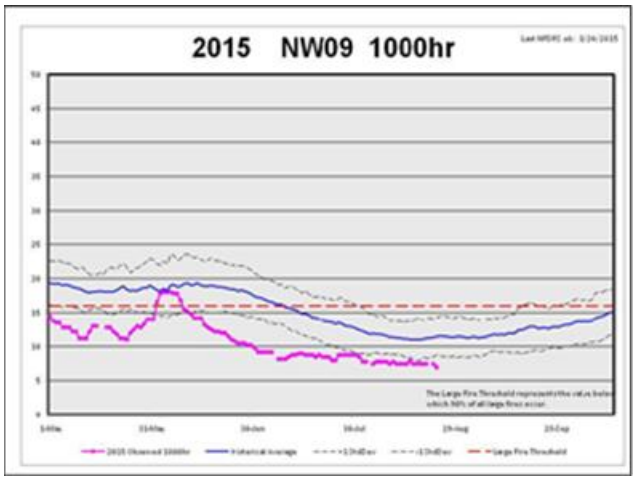
This screen capture shows detected heat via satellite (yellow, orange, and red dots) with red arrows depicting projected wind and resultant fire behavior/spread. Blue arrows show distance between fires.

- **PNW Long-Term Outlook for Fire Season 2015 (dated 8/26/15).**
    - Created to provide information about the potential duration of the fire season by predictive service area (PSA), short-, mid-, and long-term. This product contained numerous resources/information (shown on the following pages).

Map of current large fire footprints by PSA (Predictive Service Area).

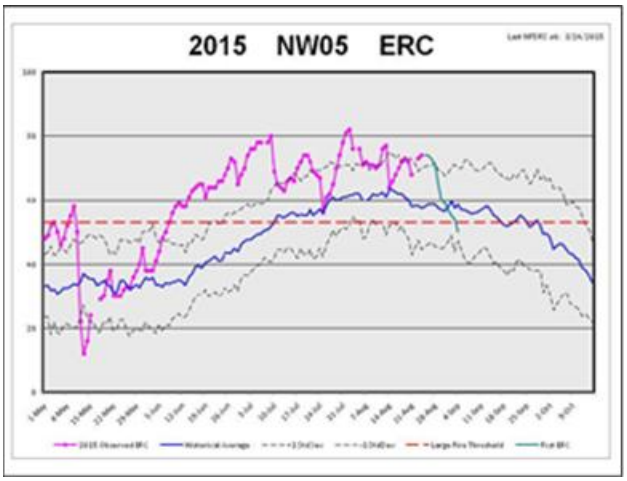


Fire Danger demonstrated through Pocketcards*.

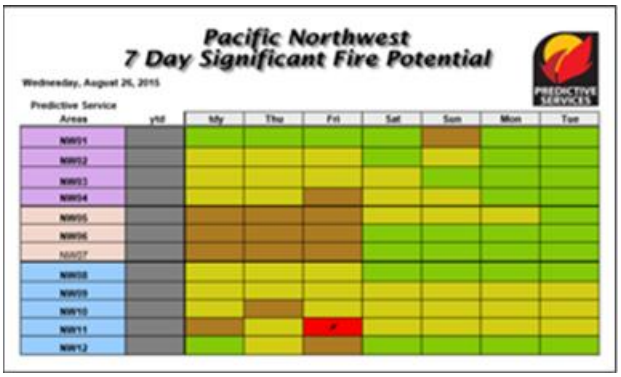


1,000 hour fuels conditions.

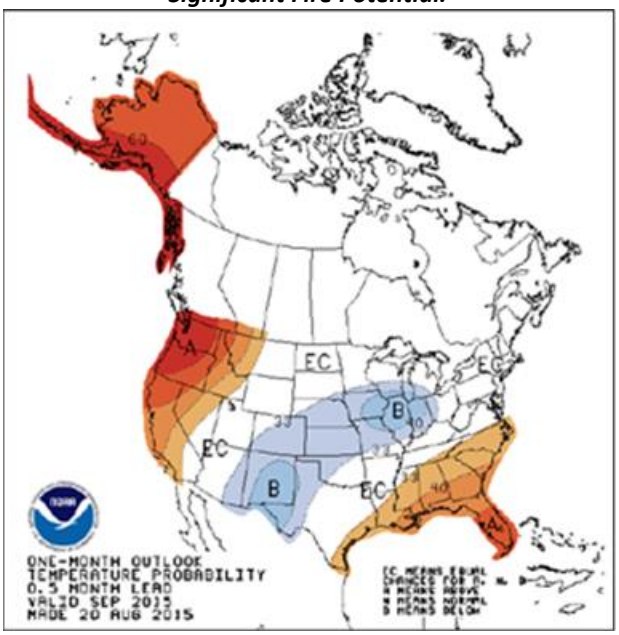
*("Fire Danger Pocketcards" are handheld cards produced by fire planners and analysts that depict the fire danger for a specific area and often reference past historical years of significant fire danger and activity as a reference point. The objective of these cards is to lead to greater awareness and, subsequently, increased firefighter safety. Additionally, the cards provide a description of seasonal changes in fire danger and are therefore useful to local as well as out-of-area firefighters.)



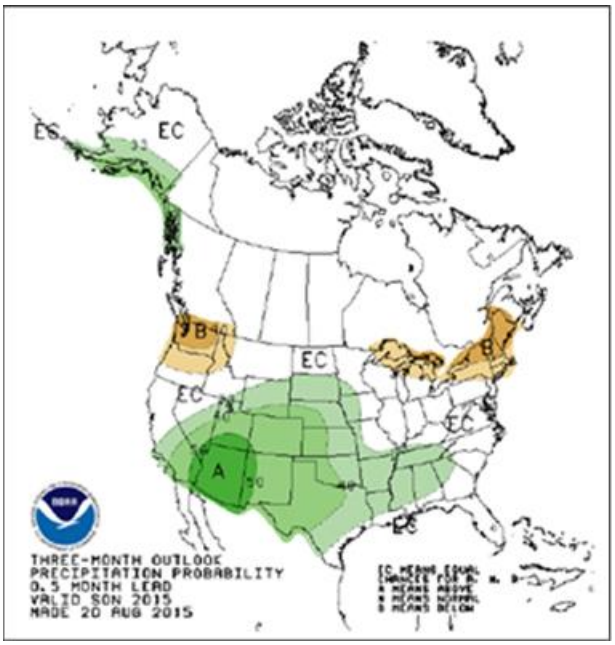
Energy Release Component (ERC) graphs.



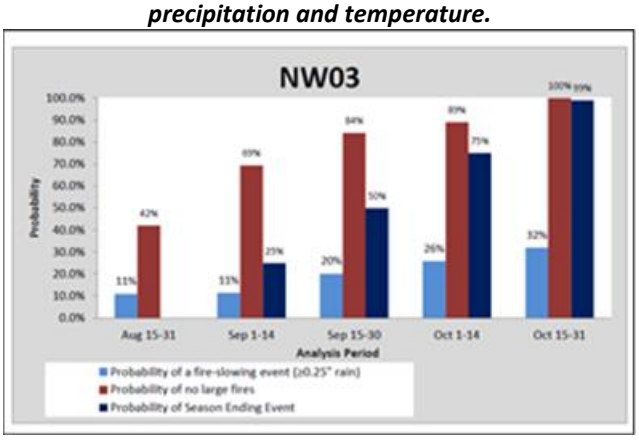
Short-term (7 day) Weather Outlook including Predictive Services 7 Day Significant Fire Potential.



Mid-term (1 month) Weather Outlook including National Weather Service (NWS) Climate Graphs of precipitation and temperature.



Long-term (3 month) Weather Outlook including NWS Climate Graphs of precipitation and temperature.



Narrative and graphical assessment and summary of probability of Large Fires, Fire slowing, and Season-ending events by PSA.

Visual map of probability of season end date by PSA, discussion and implications.

- **Assessment of Large Fires That May Extend into the Fall.**
    - Created to give a specific look at fires that may extend into fall due to heavy fuels, minimal precipitation, remoteness, and accessibility. Provides a table displaying fire with location of greatest heat, recent precipitation, percentile season end date, uncontrolled line, likelihood of extending into fall and precipitation. Includes a National Weather Service 3-day precipitation map and 10 mph wind gusts for the Northwest.

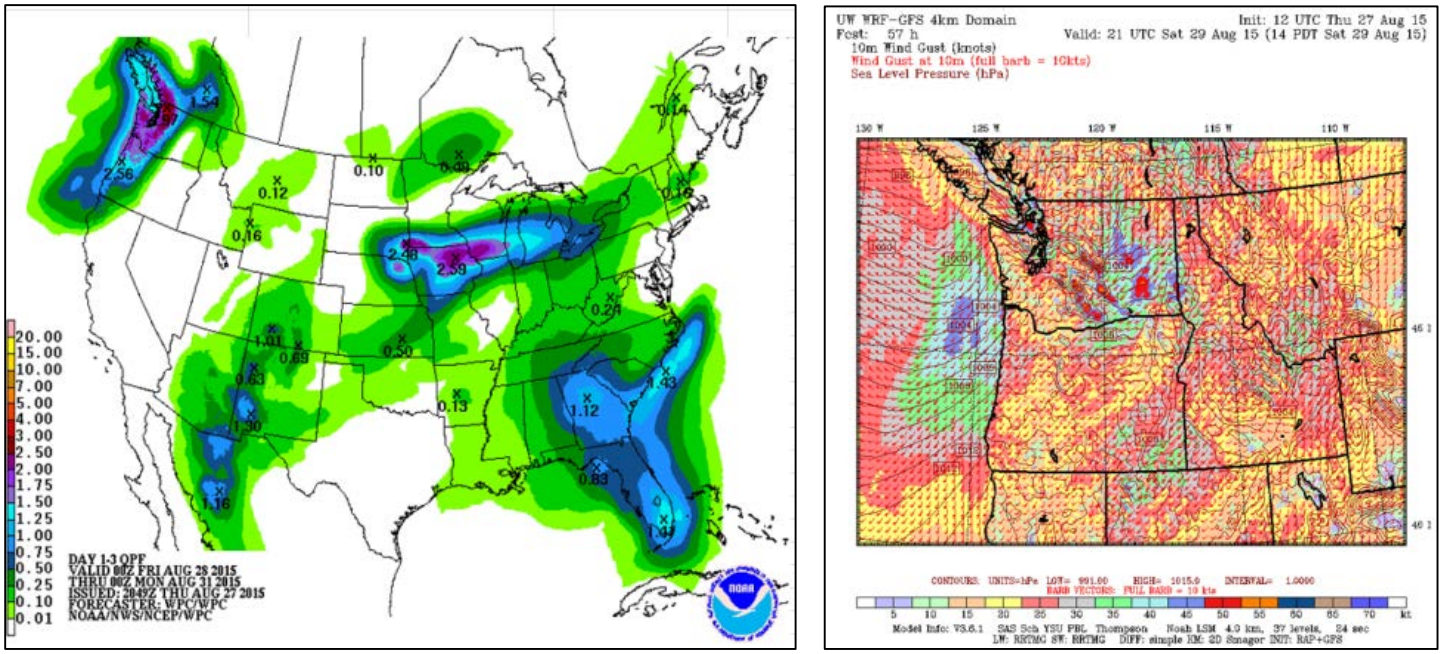
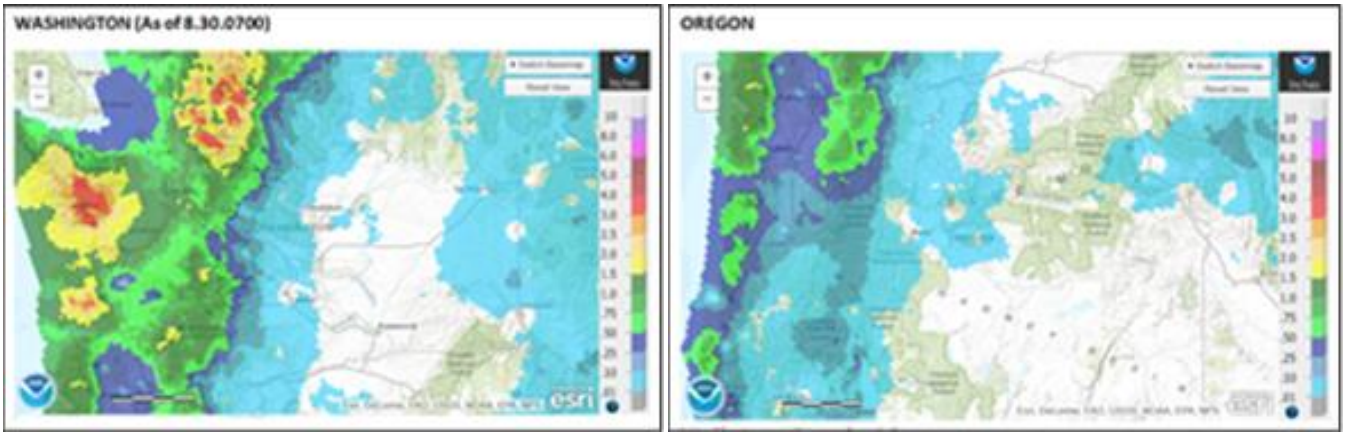
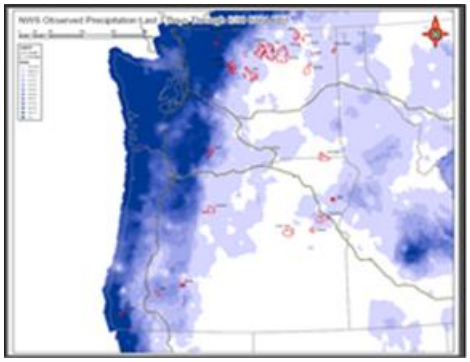


Image on the left shows predicted rain over a 3 day period in inches. Image on the right shows predicted 10-mile an hour wind gusts (red arrows) for the Northwest.

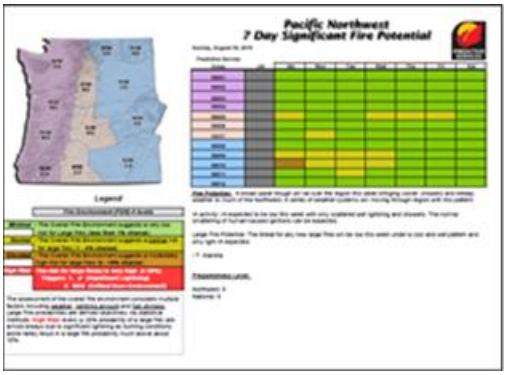
- **Assessment of Current and Predicted Precipitation and Resultant Fire Potential as the Area Began to Receive Precipitation to Some Areas.**



Predicted precipitation for Washington and Oregon.



National Weather Service-observed precipitation in the last 7 days with large fire polygon overlay.



Predictive Services 7 day Fire Potential Outlook.

Appendix D – Air Quality and Smoke Response

Regional Air Quality Program and Smoke Program Staff Actively Engaged in Addressing Various Smoke Impacts

During the 2015 fire season, extensive areas of wildfire in Oregon and Washington resulted in widespread public exposure to smoke as well as extended episodes of unhealthy air quality for many people in communities and rural areas.

Exposure to smoke can impact public health, especially to sensitive individuals, including people with heart or lung disease, people with asthma, infants and children, adults older than 65, and pregnant women.

Serious smoke episodes disrupt lives and can cause cancellation of outdoor activities, festivals, school events, and tourism. Thus, these impacts from smoke to local and regional economies can be very significant.

The Regional Air Quality Program and Smoke Program staff have been actively engaged to address three components of smoke impacts: community health, transportation safety, and personal exposure for firefighters. This response is focused on monitoring, forecasting, and public messaging in a collaborative effort with all of our agency partners.

The 2015 Pacific Northwest Region Wildfire Smoke Response

In Late June Regional Staff Begins to Watch for Smoke Impacts

When the first significant wildfires occurred in late June, the Pacific Northwest Region's Regional Air Quality Program and Smoke Program staff began watching for smoke impacts to air quality.

The Pacific Northwest Region sponsors and maintains working partnerships in Oregon and Washington with state air quality agencies, state health agencies, local public health departments, the Environmental Protection Agency, tribes, and state emergency management.

When smoke causes serious impacts, frequent coordination conference calls among this partnership group occur.

For Six Weeks—Starting at the End of July—Wildfire Smoke Causes Significant Air Quality Concerns

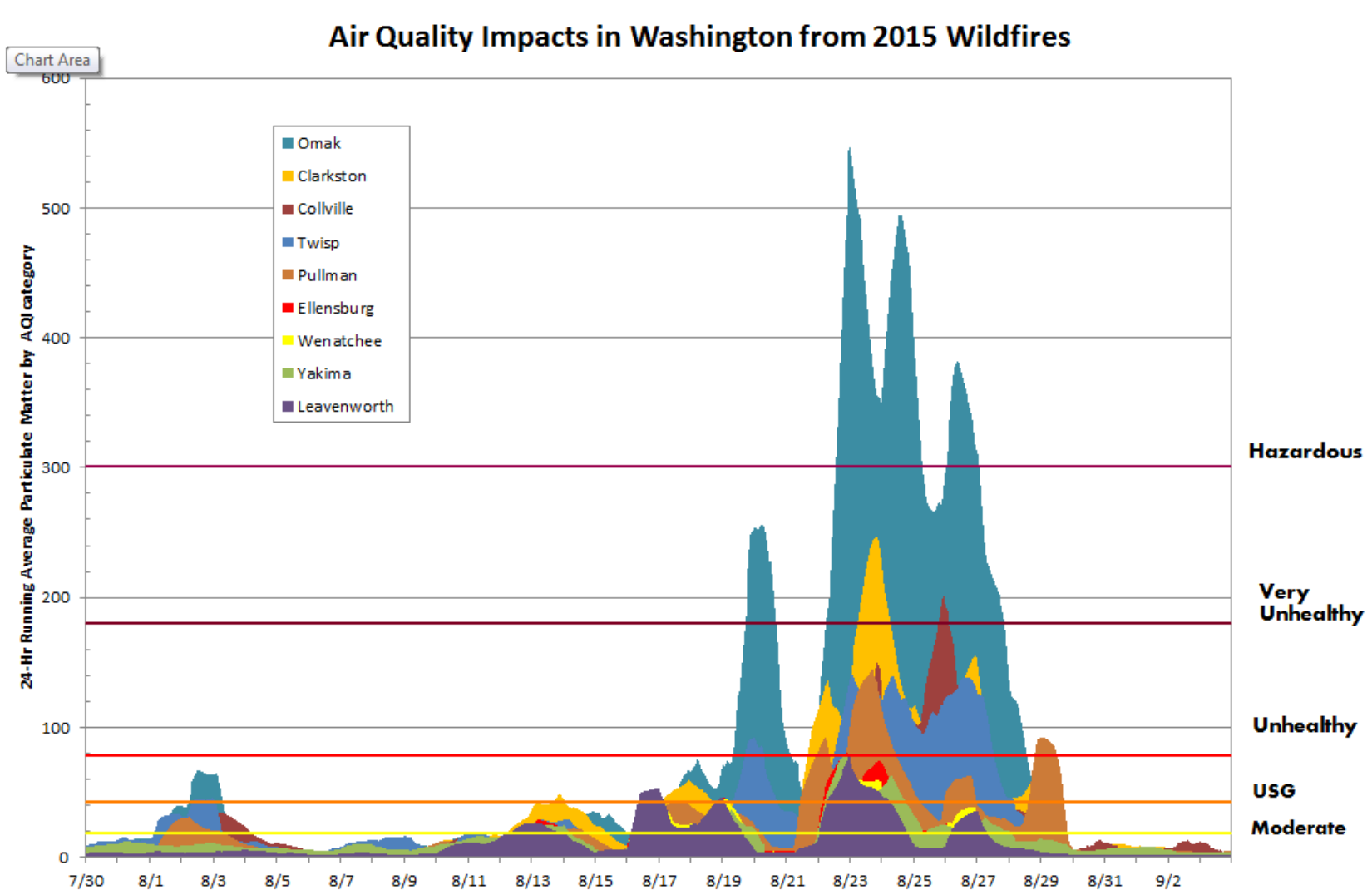
For nearly six weeks—beginning at the end of July through the first weeks of September—smoke from the 2015 wildfires caused significant air quality concerns in Oregon and Washington as well as adjacent states and Canada. (See graph on next page.)

Air Resource Advisors contribute almost 200 days of air quality support to the Pacific Northwest Region's wildfire air quality response effort.

Special "Air Resource Advisors" Deployed to Multiple Incidents

The U.S. Forest Service Washington Office Fire and Aviation Management (FAM) staff is developing the Wildland Fire Air Quality Response Program which deploys specially trained technical specialists—known as Air Resource Advisors (ARA)—and a national cache of smoke monitors available by request.

These Air Resource Advisors assisted the Pacific Northwest Region by supporting the air quality needs of communities and fire personnel during the 2015 wildfire smoke episodes. These specialists



Communities in Washington State experienced many days of "Unhealthy" and even "Hazardous" air quality conditions on the EPA Air Quality Index scale from smoke impacts during 2015 wildfire season.

"Air Resource Advisors provide an air quality presence at public meetings and can provide the necessary information to local health experts who make important decisions about limiting student athletes' exposure and cancelling outdoor events based on sound science rather than just economics."

Sean M. Hopkins, Air Quality Specialist
Washington State Department of Ecology

were deployed to multiple incidents (with a total of 16 dispatches). They contributed a total of nearly 200 days of air quality support to the Pacific Northwest Region's wildfire air quality response effort. Specifically, these Air Resource Advisors produce a standard, daily product of predicted air quality conditions that is circulated by Public Information Officers and posted to online communication tools. Air Resource Advisors were deployed to Agency Administrators on the Colville, Rogue-Siskiyou, Umpqua, Malheur, and Wallow-Whitman national forests as well as the Colville Area Command. In addition, Air Resource Advisors were deployed directly to Incident Management Teams on the Buckskin, National Creek, Canyon Creek, Chelan Complex, and Wolverine fires.

The Air Resource Advisors also attend community meetings, install monitors, confer with fire safety officers about smoke impacts, and coordinate with agency administrators and air quality and public health partner agencies.

Through these efforts, along with those of our agency partners, a coordinated response to wildfire smoke is occurring across the Region. The public has received daily smoke forecasts as well as the recommended actions to take to protect themselves. In Washington, communities have responded through the use of clean air shelters, appropriate use of respirators, home filtration systems, and personal decisions to leave the area. Community response has been very supportive and appreciative.

For three days when smoke blanketed much of the Pacific Northwest Region, each blog received more than 50,000 views a day.

Smoke Blogs Prove to be a Successful Source for Communicating with Public and Air Quality Partners

A primary venue for communicating with the public and air quality partners are the Oregon and Washington "smoke blogs": oregonsmoke.blogspot.com and wasmoke.blogspot.com.

By mid-September 2015, a total of 277 posts had been made to these blogs by interagency partners and the Air Resource Advisors. The Washington blog received 550,000 page views. The Oregon blog received 320,000 page views. When smoke blanketed much of the Pacific Northwest Region from August 21 through August 23, each blog received more than 50,000 views a day.

Small, Rural Communities Helped

Supplemental air quality monitoring was provided by the Forest Service to small, rural communities with no state air quality monitors. Temporary monitors were deployed from the national monitoring cache—part of the WO FAM Wildland Fire Air Quality Response Program (see photo on right).

To supplement state networks, temporary air quality monitors were installed by the Air Resource Advisors and regional Forest Service staff in 13 small, rural communities across the Region that were impacted by smoke during the 2015 season.

Air Quality Forecast - Chelan Lake & Methow Valley Fires Sunday, August 23, 2015

Prepared by: Andrea Holland (andreahollandsears@gmail.com) & Carolyn Kelly (ckelly8384@gmail.com)

Note: The Manson monitoring site has been inoperative for the last week caused by a malfunction in the instrument. Please refer to information provided from the Chelan monitor for estimating impacts to Manson.

Sunday: Greater fire activity is expected today. While late morning will see some lifting of smoke in impacted areas, more smoke is expected to settle into nearby communities. Those closest to the fires such as Chelan, Manson, Twisp, Winthrop and Omak will see air quality reach into very unhealthy levels by the evening and throughout the night. Omak may see periods of hazardous air quality.

Monday: Chelan and Manson are not likely to see much relief from smoke today. Winthrop and Twisp may see some relief in the morning with a return to unhealthy air levels by the afternoon as fire activity picks up. Omak will continue to see unhealthy levels of smoke with periods ranging from very unhealthy to hazardous.

Tuesday: Leavenworth and Wenatchee should see some relief from the smoke. Smoke will remain persistent for Chelan, Winthrop, Twisp and Omak areas.

Site	August 23 Air quality -Sunday	August 24 Air Quality – Mon	August 25 Air Quality - Tues	Comments
Chelan	Unhealthy Very Unhealthy	Very Unhealthy	Unhealthy	By early evening Sunday Chelan and Manson will see smoke concentrations approaching very unhealthy levels.
Winthrop	Unhealthy	Unhealthy	Unhealthy	
Twisp	Unhealthy Very Unhealthy	Unhealthy	Unhealthy	By early evening smoke concentrations will approach very unhealthy levels.
Omak	Unhealthy Very Unhealthy	Unhealthy V. Unhealthy	Unhealthy	Smoke concentrations become worse from late afternoon through the night.
Leavenworth	Moderate Unhealthy	Moderate	Good	Smoke will settle into the area later in the afternoon bringing air quality into unhealthy levels.
Wenatchee	Moderate USG	Moderate	Good	Smoke will settle into the area later in the evening reaching air quality levels unhealthy for sensitive individuals.

Disclaimer: Conditions may change quickly. These predictions are based on anticipated weather and fire activity. The air quality outlook is based on data from automated instruments that have not been subjected to a quality assurance review. AQI's estimated for sites with air monitors.

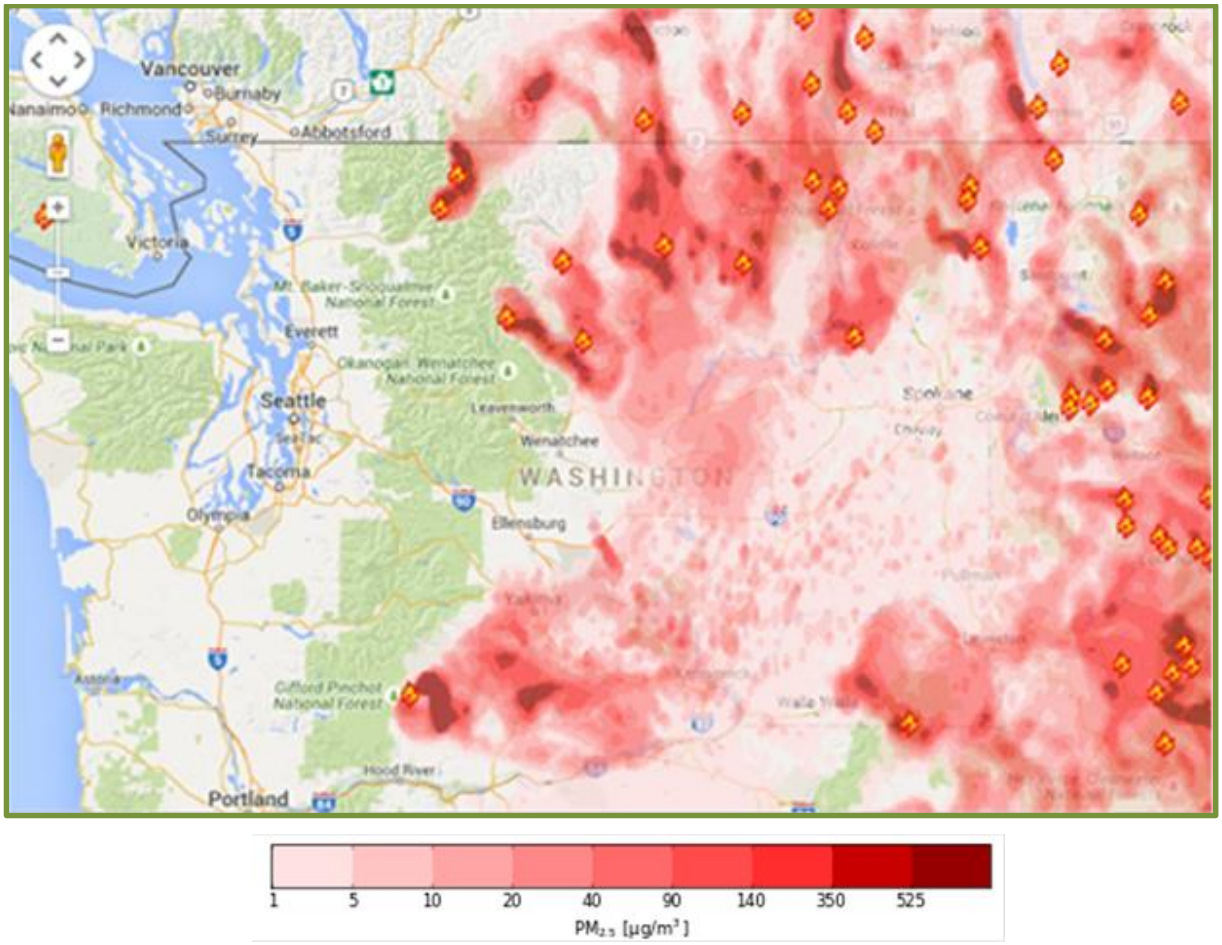
Index Levels of Health Concern	Actions Recommended by WA Department of Ecology to Reduce Smoke Exposure
Good	None
Moderate	People with asthma, respiratory infection, diabetes, lung or heart disease, or have had a stroke should limit outdoor activities or do activities that take less effort, such as walking instead of running.
Unhealthy for Sensitive Groups	Sensitive groups include people with heart or lung disease, asthma, diabetes, infants, children, adults older than 65, pregnant women, or who have had a stroke. These people should limit time spent outdoors.
Unhealthy	Everyone should limit time spent outdoors, avoid exercising outside (including sports teams) and choose non-strenuous indoor activities. Those with asthma, respiratory infection, diabetes, lung or heart disease, or have had a stroke should stay indoors as should ilnfants, children, pregnant women and adults over age 65.
Very Unhealthy	Everyone should stay indoors, do only light activities, and keep windows closed if it is not too hot. Run air conditioners on re-circulate and close the outside air intake. Use indoor air cleaners with HEPA filters, if available. If you must be outdoors, wear an N-95 respirator mask. People with chronic diseases should check with their health care provider before wearing a mask. Check with your local health department for health information. People with asthma, lung and heart disease, or have had a stroke should check with their health care provider for advice about leaving the area. Anyone with shortness of breath, wheezing, chest pain, heart palpitations, extreme fatigue, or difficulty moving or speaking should call their health care provider or call 911.
Hazardous	Everyone should stay indoors, do only light activities, and keep windows closed if it is not too hot. Run air conditioners on re-circulate and close the outside air intake. Use indoor air cleaners with HEPA filters, if available. If you must be outdoors, wear an N-95 respirator mask. People with chronic diseases should check with their health care provider before wearing a mask. Check with your local health department for health information. People with asthma, lung and heart disease, or have had a stroke should check with their health care provider for advice about leaving the area. Anyone with shortness of breath, wheezing, chest pain, heart palpitations, extreme fatigue, or difficulty moving or speaking should call their health care provider or call 911.

Webcam looking up Lake Chelan http://www.fsvisimages.com/fstemplate.aspx?site=okwe3_fire1

For more information about smoke in Washington State, visit http://wasmoke.blogspot.com/

Example of an Air Resource Advisor's air quality forecast.

Predicting Smoke Dispersion and Accumulation



As an example, this is the 24-hour average smoke model prediction for August 24, 2015 in Washington that was produced by the AirFire BlueSky model.

AirFire Team Provides Critical Support to Air Resource Advisors

The Wildland Fire Air Quality Response Program also supports the Forest Service Pacific Wildland Fire Sciences Lab's Atmosphere and Fire Interactions Research "AirFire" Team.

This special team is integral to the operational efforts of the Air Resource Advisors as well as state and local agencies during wildfire smoke episodes.

AirFire developed and maintains BlueSky, the primary tool used by the Air Resource Advisors for predicting smoke dispersion and accumulation. (See visual example above.)

The AirFire team works diligently during wildfires to ensure the model is providing the critical support on which the Air Resource Advisors depend.

More AirFire Air Quality Tools Used During the 2015 Fire Season

In addition, AirFire developed new tools for 2015 to quickly analyze and summarize air quality data from state and national cache monitoring instruments.

AirFire also developed a new map layer used by the smoke blogs to show fire locations as well as state and temporary air quality monitoring locations that are color-coded by EPA Air Quality Index levels for air quality conditions. These efforts include working to monitor and reduce firefighter exposure to smoke.

Appendix E – Four Potential Long-Duration Fires

Four Potential Long-Duration Fires

That were Limited in Size and Duration Due to Successful Strategic Management

Strategy:

Apply Aggressive Suppression Actions to Limit Fire Duration and Impacts to Regional Firefighting Resource Availability

In the spring of 2015, the Pacific Northwest Region was predicted to experience a long, dry fire season with a high potential for firefighting resource shortages.

Therefore, several wildfires that started in areas deemed to have high potential for long-duration events (limited access, steep slopes and large amounts of extremely dry fuel) were given similar management strategies.

Specifically, these strategies were to apply aggressive suppression actions intended to limit the duration of the fire and associated long-term commitment of regional firefighting resources.

Implementing this strategic fire management approach early in the fire season in remote locations would best enable the Pacific Northwest Region to minimize the chance of having long-duration fires that would commit resources for significant periods of time.

This overall strategy provided for the assignment of large numbers of firefighting resources in order to contain the fires in a short amount of time—accepting the potential for these fires to cost more per acre as a result.

Generally, this strategy was successful in limiting the duration of these early season wildfires during low wildfire activity and freeing-up the firefighting resources from those fires before the most active part of the summer fire season began.

Four Potential Long-Duration Fires

Buckskin Fire – 5,345 Acres

Started June 11 adjacent to the Kalmiopsis Wilderness Area in the Rogue River-Siskiyou National Forest. By June 24, the fire's growth was stopped at a total of 5,345 acres burned.

Horseshoe Fire – 340 Acres

The fire was detected July 3 in the Mt. Adams Wilderness on the Gifford Pinchot National Forest. Direct attack was implemented on two-thirds of the fire's perimeter. On the other one-third of the perimeter, the fire was confined in a previous fire scar. On July 12, the Horseshoe Fire was contained at a total of 340 acres.

Baldy Fire – 515 Acres

Started August 1 in the Abercrombie-Hooknose Inventoried Roadless Area on the Colville National Forest. An effective combination of natural barriers, hand line, and firing operations successfully halted the fire's spread by August 8. Total fire size was 515 acres.

Collier Butte Fire – 11,800 Acres

Started August 2 in the Kalmiopsis Wilderness on the Rogue River-Siskiyou National Forest. Initially, due to this fire's remoteness and low fire behavior, it was the lowest priority fire among many new fire starts. Increased fire activity spurred aggressive suppression utilizing fire lines from the 2002 Biscuit Fire, natural barriers, and hand lines that successfully halted the fire's growth on August 24. Total fire size was 11,800 acres.

The Buckskin Fire

For Interactive Map: http://arcg.is/1XxBBwz

During June 8-9, more than 2,000 lightning strikes occurred in the Pacific Northwest Region under unseasonably dry conditions. Many of these lightning strikes hit isolated parts of the Rogue River-Siskiyou National Forest in southwestern Oregon.

This lightning forecast was predicted and communicated with adequate time to prepare for expected Initial Attack activity.

The Buckskin Fire was reported on June 11. It was located adjacent to the Kalmiopsis Wilderness in the Rogue River-Siskiyou National Forest. When the fire was reported, the National and Regional Preparedness Levels were at 2. There were 24 active fires nationally, with 586 personnel assigned to incidents.

In anticipation of this forecasted lightning storm, additional resources—well above the "normal" Rogue River-Siskiyou firefighting staffing—had been ordered and were pre-positioned ready for work. Those resources included five Interagency Hotshot Crews, Engines, Overhead, and miscellaneous Equipment.

Due to Several Factors, This Fire Could Be a Long-Duration Event

At 12:18 p.m. the same day, the Buckskin Fire was reported to have moved into the footprint of the 2002 Biscuit Fire. Values at risk from this fire included private land, coho salmon habitat and stands of disease-free Port Orford cedar. It was recognized that due to the early season start, the hot and dry conditions on top of a persistent drought coupled with a heavy accumulation of large, dead logs and the fire's location on the edge of the vast Kalmiopsis Wilderness, this fire could be a long-duration event.

Initial response to the Buckskin Fire was aggressive direct attack. Initial Attack resources were ordered while fire spread was concurrently slowed by Air Tankers and Helicopters. However, due to the influence of Red Flag conditions which brought high temperatures, low relative humidity and strong, dry north/northeast winds, coupled with the high accumulation of dry fuels from the pervasive drought, aircraft were not fully effective.

Notable Successes

From the various host National Forests' perspective, the strategy to contain these fires at the smallest footprint possible to quickly free-up resources was an overall success.

All four of these fires were contained at a small acreage relative to their potential. In addition, just as importantly, the management of these fires was transitioned back to the Forests in a way that ensured that the fires could continue to be held and suppressed until the end of fire season.

Regional Interaction

The Forests also highlighted the level of Regional interaction in decision-making. It was a consensus that this "Short Duration" strategy was a shared strategy between the Region and the individual Forests.

Cost Analysis

While it was recognized that this strategy would likely cause an increased cost per acre, analysis (using tools in the Wildland Fire Decision Support System) indicates the costs per acre for each of these four fires—although on the higher end of the spectrum—are not precedent-setting costs.

Furthermore, the overall cost for these fires would likely have been much greater if they had grown to their predicted sizes and duration.

Forest Preparedness with Severity Funding

Although these fires still required Type 2 Incident Management Teams, it was noted by multiple Forests that, due to severity funding, preparedness staffing was higher in anticipation of the events that ignited these fires.

Without these resources, response to these fires as well as other fires would have been slower and would have certainly resulted in additional acres burned.

This weather event lasted more than 12 hours. Its impact was illustrated by a spot fire that ignited 1.5 miles away from the main fire. Fire growth exceeded containment efforts. A Type 2 Incident Management Team was ordered.

Hazards to firefighter safety that inhibited direct attack included: concentrations of large snags from the 2002 Biscuit fire; lack of safety zones; and difficult access associated with steep, rough terrain.

At 6 a.m. on June 13, the Oregon Interagency Incident Management Team #3, a Type 2 team, assumed command. Tactics were developed using previously constructed Dozer lines from the 2002 Biscuit Fire, as well as existing roads and trails and two miles of new hand line.

All fire spread was successfully halted by June 24 at 5,345 acres.

Top – This photo, taken on June 11 when the Buckskin Fire was first reported, occurred shortly after the Siskiyou Rappel Crew arrived for Initial Attack. Photo by Michael Bolic. Bottom – The Buckskin Fire on June 16. Photo by Kris Sherman.

The Horseshoe Fire

For Interactive Map:
http://arcg.is/1NlyA17

The Horseshoe Fire was detected on July 3 at 4:13 p.m. in the Mt. Adams Wilderness of the Gifford Pinchot National Forest in south-central Washington.

When first reported, the fire was estimated to be greater than 50 acres in size. This fire was discovered in an area of heavy concentrations of dead, down timber near the 2012 Cascade Creek Fire area. Shortly after its discovery, the fire was reported to be "torching" that resulted in short-range spotting into easily ignitable heavy fuels and grass.

All Local Firefighting Resources in Place

When the Horseshoe Fire ignited, the National Preparedness Level was 3. The Pacific Northwest was at a Preparedness Level 4.

There were a total of 28 uncontained large fires nationally with 9,395 firefighting resources assigned. In addition, 12 Large Fires were burning within the Pacific Northwest Region—which also had another 13 new fire starts.

All local firefighting resources were still positioned on the Gifford Pinchot National Forest.

The Horseshoe Fire on July 3, the day it is detected, as seen from Mt. Adams.

Drought Conditions, Difficult Terrain, Lack of Access

Drought conditions persisted due to prolonged hot, dry weather and the record-low snow pack. Dead fuel conditions were similar to peak fire season conditions typically experienced in August and September.

Due to fire size and behavior, difficult terrain, lack of access, lack of potential safety zones, and difficult logistical support,

local resources were unable to staff and contain the fire during Initial Attack.

Two local Engines and a Type 2 Helicopter pre-positioned at the nearby Heliport in The Dalles, Oregon responded. However, they were unable to safely engage the fire on the ground. A Type 3 organization managed the fire with reconnaissance from one squad from a local crew.

On July 6, a Type 2 Team, Washington Interagency Incident Management Team #4, took command of the Horseshoe Fire. The team was briefed on the decision to stop fire growth rapidly and contain the fire at the smallest size safely possible.

Initial Attack – An Air Tanker drops retardant on the Riley Fire on July 9, when a new thunderstorm produced this fire near the Horseshoe Fire. Both incidents were managed by the same Incident Management Team.

This strategy was intended to mitigate a higher long-term risk to firefighters associated with the potential for a long-term fire. The following day, after a risk analysis was conducted, Type 2 Crews and Type 2 Initial Attack Crews were utilized to begin control efforts.

The control plan included direct attack on two-thirds of the fire's perimeter and a confine strategy using the Cascade Creek Fire scar on the other one-third of the perimeter.

Type 1 Crews were later added to the fire suppression efforts on the Horseshoe Fire.

On July 9, a thunderstorm produced an additional ignition which quickly spread to 60 acres and became the Riley Fire. This fire was also managed by the Incident Management Team assigned to the Horseshoe Fire. The two fires became the Mt. Adams Complex.

Work on the Horseshoe Fire continued until July 12, when it was put into patrol status. The Horseshoe Fire was successfully contained at 340 acres.

The Type 1 Prineville Interagency Hotshot Crew members cutting fire line on Division Y of the Collier Butte Fire.

Collier Butte Fire

For Interactive Map:
http://arcg.is/1QqMn6z

The Collier Butte Fire ignited inside the Kalmiopsis Wilderness on the Rogue River-Siskiyou National Forest within the footprint of the 2002 Biscuit fire. This fire was started from of a lightning storm that produced more than 900 strikes across the Pacific Northwest Region on August 2. More than 12 other additional wildfires were ignited within the Collier Butte Fire's Gold Beach/Powers Zone during that lightning storm.

Over the next 10 days, at least 70 more fires were discovered on the Forest. At the time, National and Regional Preparedness levels were both at 3. There were 10 uncontained Large Fires in the Pacific Northwest Region and another 20 in other regions of the country, with 14,683 firefighting resources assigned.

Additional Staffing was Pre-Positioned

In anticipation of probable starts across the Zone, additional staffing well above the "normal" number of firefighters on this Forest had been pre-positioned at the Gold Beach Ranger District.

The Collier Butte Fire was initially burning within the 2002 Biscuit Fire perimeter in the Kalmiopsis Wilderness. Hazards to firefighters included: steep terrain, numerous snags, and few safety zones. This fire's remote location posed difficult access for firefighters. Values at risk included wilderness and cultural and natural resources. The Agency Administrator's Leader's Intent included containing the fire quickly at a small size.

Burn out operation on the Collier Butte Fire on August 17. Fire modeling suggests that without rapid aggressive attack, this fire would have continued burning for several more weeks—potentially doubling or tripling in size. Photo by Josh O'Conner.

Fire Grows Rapidly

Due to this fire's location in the Kalmiopsis Wilderness and its relatively low values at risk, other fires located closer to communities were given priority for firefighting resources. The Rogue River-Siskiyou National Forest made rapid progress in containing these other fires.

During the second burn period on the Collier Butte Fire, it grew rapidly inside the footprint of the 2002 Biscuit Fire.

A Type 2 Team, the Oregon Interagency Incident Management Team #3, was ordered and took command of the Collier Butte Fire on August 6 at 6 a.m.

A Combination of Direct and Indirect Strategies Implemented

The Forest and the Incident Management Team selected a combination of direct and indirect strategies to protect values at risk and form a "catcher's mitt" of north, west and south containment lines to stop fire spread in all of those directions.

The eastern portion of the fire, in the Kalmiopsis Wilderness Area, was also scouted for opportunities to establish containment lines. Indirect tactics were utilized, using—where feasible—previously constructed Biscuit Fire dozer lines and roads. Control lines were hand-fired and supplemented with aerial ignition to burn out fuels in unburned islands on the north, west and south portions of the fire.

Fuels on the east flank were pretreated and the fire's spread was stopped with aerial retardant. Minimum Impact Suppression Tactics (MIST) were applied on the north, west and south flanks, as well as on contingency lines.

The Collier Butte Fire's spread was successfully halted on August 24 at 11,800 acres.

Fire managers suggest that without rapid aggressive attack, the Collier Butte Fire would have continued burning for several more weeks—potentially doubling or tripling in size.

Baldy Fire

For Interactive Map: http://arcg.is/1lPm2oi

On Saturday, August 1 at 5:19 p.m., the Baldy Fire was detected on the southwest flank of Mt. Baldy in the Abercrombie-Hooknose Inventoried Roadless Area on the Colville National Forest near Ione, Washington. While the fire's ignition source remains unknown at this time, records indicate that the fire could be a "holdover" from storms that passed through the area in previous weeks.

Values at risk on this fire included private lands; land managed by the Washington State Department of Natural Resources; Bonneville Power Administration transmission lines; a communication site; and threatened, endangered and sensitive species (bull and westslope cutthroat trout).

The Forest was under extended drought conditions and unseasonably warm weather was predicted for the next six weeks. Nationally, as well as in the Pacific Northwest Region, the Preparedness Level was 3. Locally, however, the Colville National Forest was at Preparedness Level 5. The Forest had just closed out the North Boulder 2 Fire which burned 232 acres.

The Baldy Fire on August 1, the afternoon it was detected.

At the time the Baldy Fire was detected, the Colville National Forest had numerous small fires receiving Initial Attack. Numerous severity resources were in place to meet most of the local fire suppression needs. The Baldy Fire, however, was going to become problematic.

Potential to Become a Long-Duration Fire

Suppression efforts on these numerous small fires were challenged by steep terrain, limited access, lack of safety zones, heavy dead and down fuels, and a high Haines Index (unstable atmospheric conditions supporting large fire growth potential). With limited firefighting resources, a high reliance on aerial resources and difficult logistical challenges in supporting firefighting efforts, the Baldy Fire had the potential for becoming a long-duration fire.

The strategy and course of action sought to quickly contain the Baldy Fire at a small size to avert a potential two-month-long event that would likely grow to more than 17,000 acres—as modeled by Fire Behavior Analysts.

Due to significant hazards and access issues, Initial Attack efforts were largely limited to air resources—which were unable to contain the fire. On August 2, the Washington Interagency Management Team #4 was ordered. This team took command of the Baldy Fire the next day at 8 p.m.

With the aggressive fire activity and lack of safety zones and egress, no crews were engaged on August 1-2 for direct attack. With the Incident Management Team transition, Type 1 and Type 2 Initial Attack Crews continued building contingency lines and scouting for direct attack opportunities.

Beginning on August 5, with smoke covering the area moderating fire conditions and snagging operations in place, direct attack tactics became feasible. The fire was successfully contained at 515 acres with no additional fire spread occurring after August 8.

Strategies were therefore employed using relatively large numbers of firefighting resources for short periods of time to halt fire spread, minimizing the potential impact on firefighting resource availability later in the fire season.

Summary

To avert long-duration fires, several of the 2015 wildfires located in or adjacent to wilderness or roadless areas received aggressive suppression responses. The long-term drought and exceptionally hot dry summer created the concern in fire managers that these fires could be expected to burn deep into the wilderness areas and have the potential to exit later in the summer and threaten adjacent communities.

These fires were also expected to require large numbers of firefighting resources for long periods of time, potentially exacerbating an expected shortage at the peak of the fire season.

Strategies were therefore employed which used relatively large numbers of firefighting resources for short periods of time to halt fire spread and then make those resources available for other new fires.

The peak mobilization for the 2015 fire season in the Pacific Northwest occurred on August 27. At this time, the following resources were assigned to wildfires in this Region: 256 Hand Crews and 877 Engines for a total of 12,468 firefighters assigned to wildfires.

Long before this peak in the need for firefighting resources occurred, all four fires discussed here—the Buckskin, Horseshoe, Baldy, and Collier Butte fires—had all been successfully turned back to local unit patrol status.

Addressing Issues, Concerns, and Challenges

Competition for Resources as the Season Continued

The strategies employed on these fires sought to rapidly contain the fires and then make firefighting resources available for new fires.

Safety Hazards Associated with Wilderness and Old Fire Scars

Snags and inaccessible, steep terrain were the common hazards needing mitigation in order to ensure safe suppression actions.

Unseasonable Weather/Drought Conditions

For most of these fires, the Forests were experiencing fire behavior uncharacteristic for the season. All four of these fires started in or adjacent to large, inaccessible wilderness areas with histories of long-duration wildfires. Many of the previous fires had encumbered large numbers of firefighting resources for weeks.

Fire Name	Ignition Date	Preparedness Levels	Cause	Total Acres	Ownership at Origin	Location
Buckskin	June 11	2, 2	Lightning	5,345	Forest Service	Wilderness
Horseshoe	July 3	3, 3	Lightning	340	Forest Service	Wilderness
Baldy	August 1	3, 3	Undetermined	515	Forest Service	Potential Wilderness
Collier Butte	August 2	3, 3	Lightning	9,105	Forest Service	Wilderness

Appendix F – Wolverine Fire

For Interactive Map: http://arcg.is/1Nly0R3

Wolverine Fire

Date of Ignition
June 29, 2015

Cause
Lightning

Land Ownership at Fire Origin
Okanogan-Wenatchee National Forest

Responding Initial Attack Resources
One Type 1 Helicopter, One Rappel Crew

Preparedness Level at Time of Ignition
National: PL 3
Local: PL 3

Acres Burned
72,123 Acres (as of 10/09/15)

Estimated Cost
$35,000,000 (as of 10/09/15)

Land Jurisdictions
Okanogan-Wenatchee National Forest

Resources at Incident Peak
Crews: 26
Engines: 104
Water Tenders: 39
Helicopters: 7 Type 1, 5 Type 3

Structures Destroyed
4

Cooperators
National Park Service, Chelan County Sheriff's Office, Chelan County Fire Districts, Chelan County Public Works, Chelan County PUD, Chelan Fire and Rescue, Lake Wenatchee Fire and Rescue, Chelan County Public Lands, EMS Chelan Hospital, City of Entiat, City of Chelan, City of Leavenworth, Chelan County Commissioners, Washington State DOT, Washington State Department of Natural Resources, Washington State Patrol, Washington State EOC, Washington State Parks, Washington State Fire Marshal, Chelan Chamber of Commerce, Leavenworth Chamber of Commerce, Wenatchee Chamber of Commerce, American Red Cross

Due to Steep and Inaccessible Terrain, Initially, the Wolverine Fire is Unsafe to Staff

A member of the Columbia River Fire Crew wraps a structure in the Cottonwood Guard Station to protect it from the approaching Wolverine Fire. Photo by Kari Greer, U.S. Forest Service.

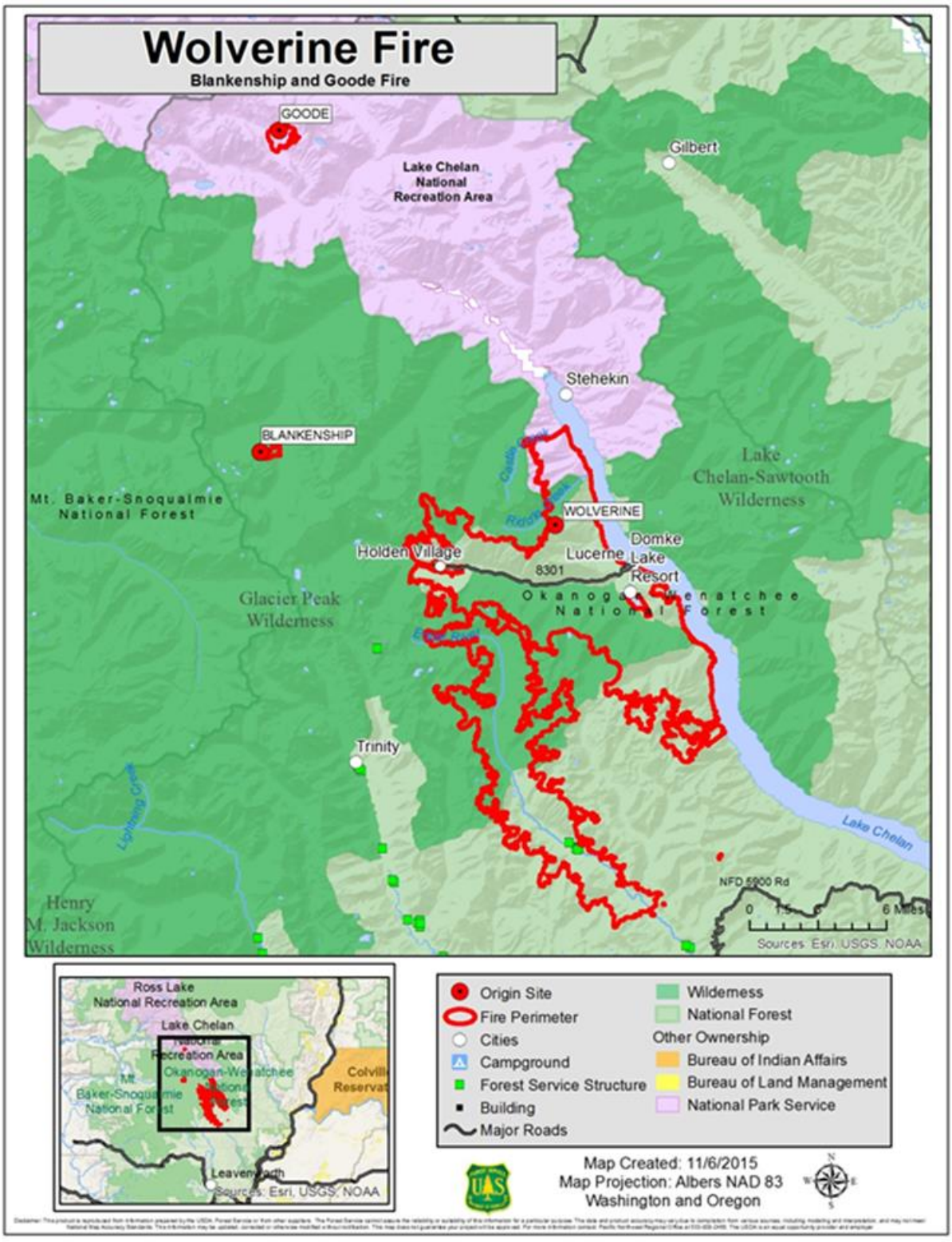
June 29

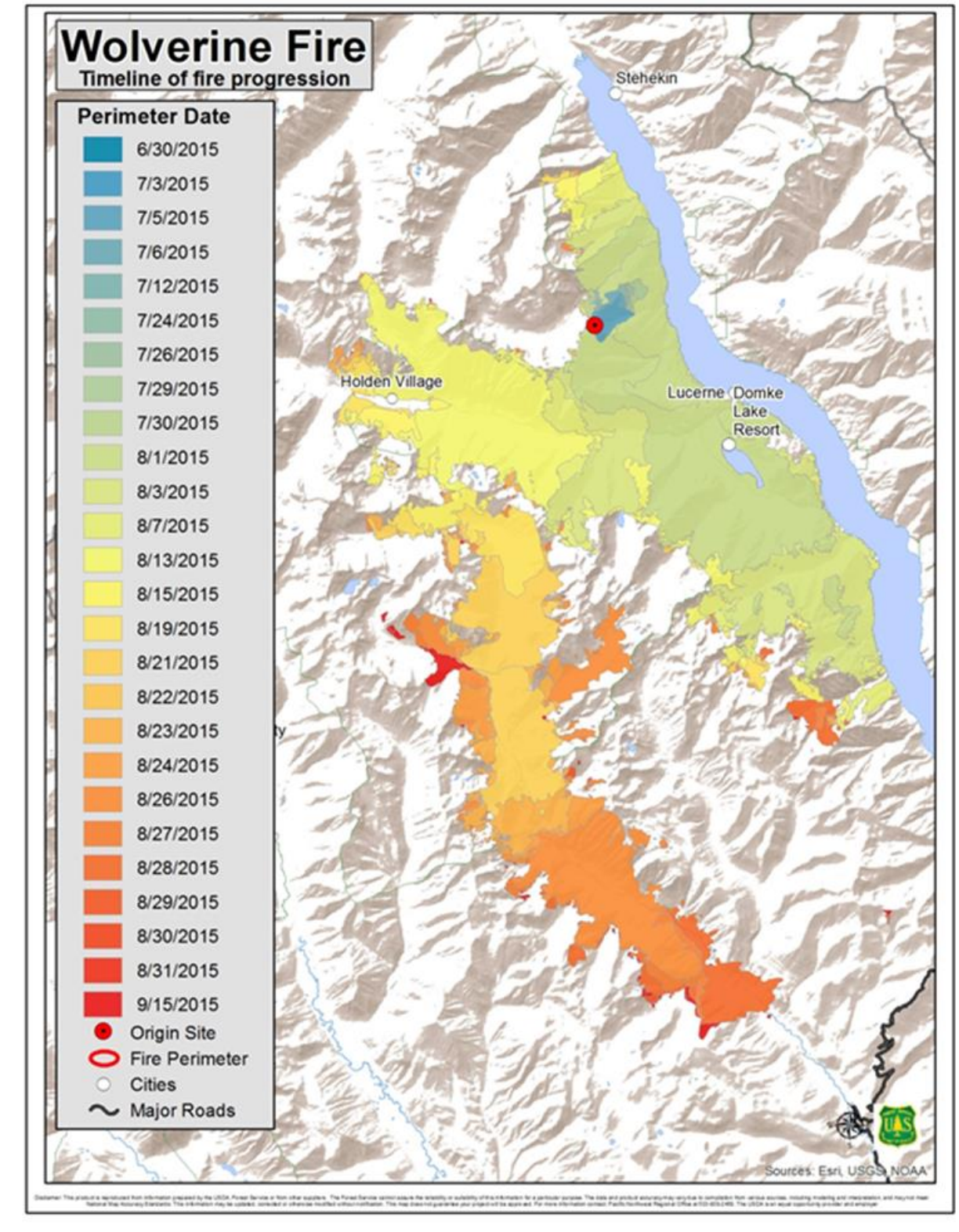
Wenatchee Valley Rappellers Inserted to Evaluate Fire

The Wolverine Fire, located in Washington State, is discovered near a ridgetop on a southwest facing slope in the Wolverine Creek drainage, south of Riddle Creek in the immediate proximity of the Glacier Peak Wilderness on the Okanogan-Wenatchee National Forest.

This lightning-caused fire is associated with thunderstorm activity that passed through the area the day before. Initial reports indicate that the fire is approximately one acre.

[Timeline narrative continues on page 112.]


Wolverine Fire
Blankenship and Goode Fire
GOODE
BLANKENSHIP
WOLVERINE
Gilbert
Stehekin
Lake Chelan National Recreation Area
Mt. Baker-Snoqualmie National Forest
Glacier Peak Wilderness
Lake Chelan-Sawtooth Wilderness
Holden Village
Lucerne
Domke Lake Resort
8301
Okanogan-Wenatchee National Forest
Trinity
Lake Chelan
NFD 5900 Rd
Henry M. Jackson Wilderness
Sources: Esri, USGS, NOAA
Ross Lake National Recreation Area
Lake Chelan National Recreation Area
Okanogan-Wenatchee National Forest
Mt. Baker-Snoqualmie National Forest
Leavenworth
Origin Site
Fire Perimeter
Cities
Campground
Forest Service Structure
Building
Major Roads
Wilderness
National Forest
Other Ownership
Bureau of Indian Affairs
Bureau of Land Management
National Park Service
Map Created: 11/6/2015
Map Projection: Albers NAD 83
Washington and Oregon


Wolverine Fire
Timeline of fire progression
Perimeter Date
6/30/2015
7/3/2015
7/5/2015
7/6/2015
7/12/2015
7/24/2015
7/26/2015
7/29/2015
7/30/2015
8/1/2015
8/3/2015
8/7/2015
8/13/2015
8/15/2015
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8/31/2015
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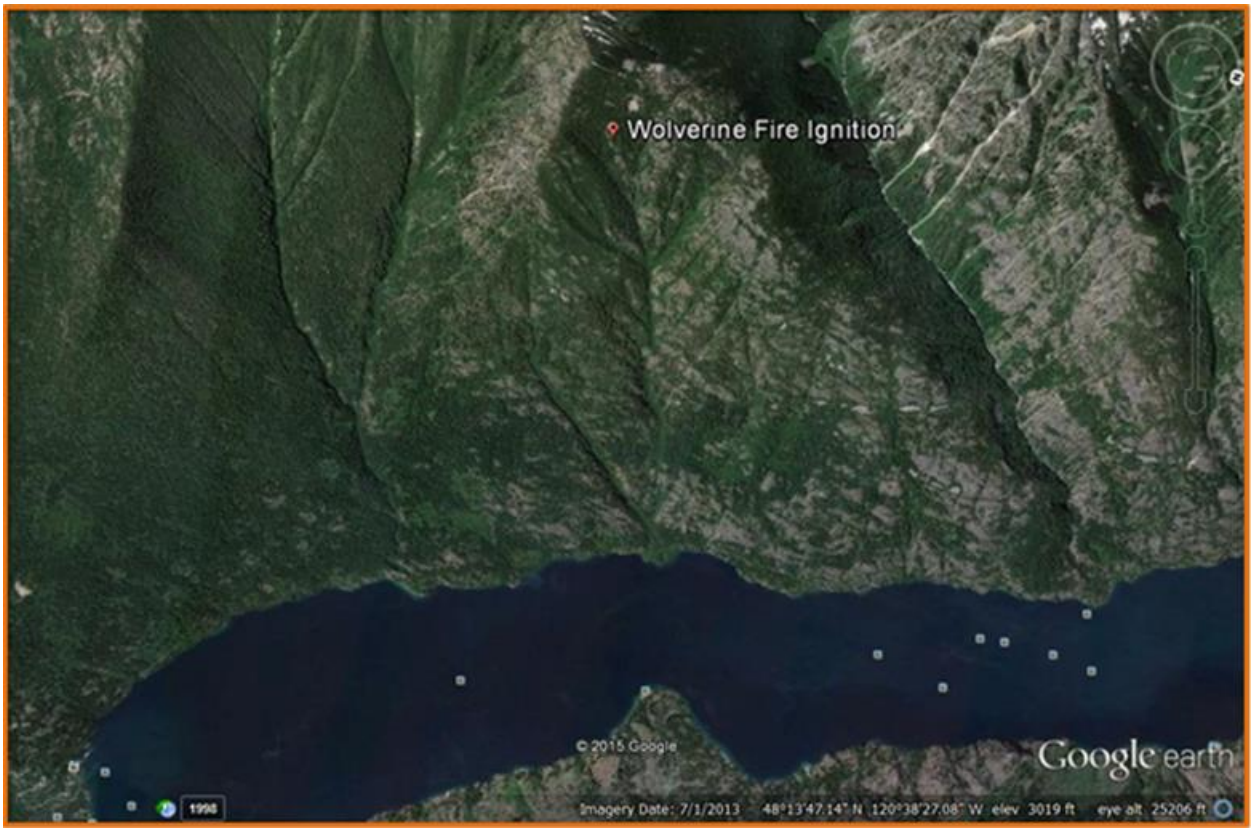
Origin Site
Fire Perimeter
Cities
Major Roads
Stehekin
Holden Village
Lucerne
Domke Lake Resort
Sources: Esri, USGS, NOAA



This Google Earth image shows why the location of the Wolverine Fire—on such extremely steep terrain—initially made it difficult and unsafe to staff with suppression resources.

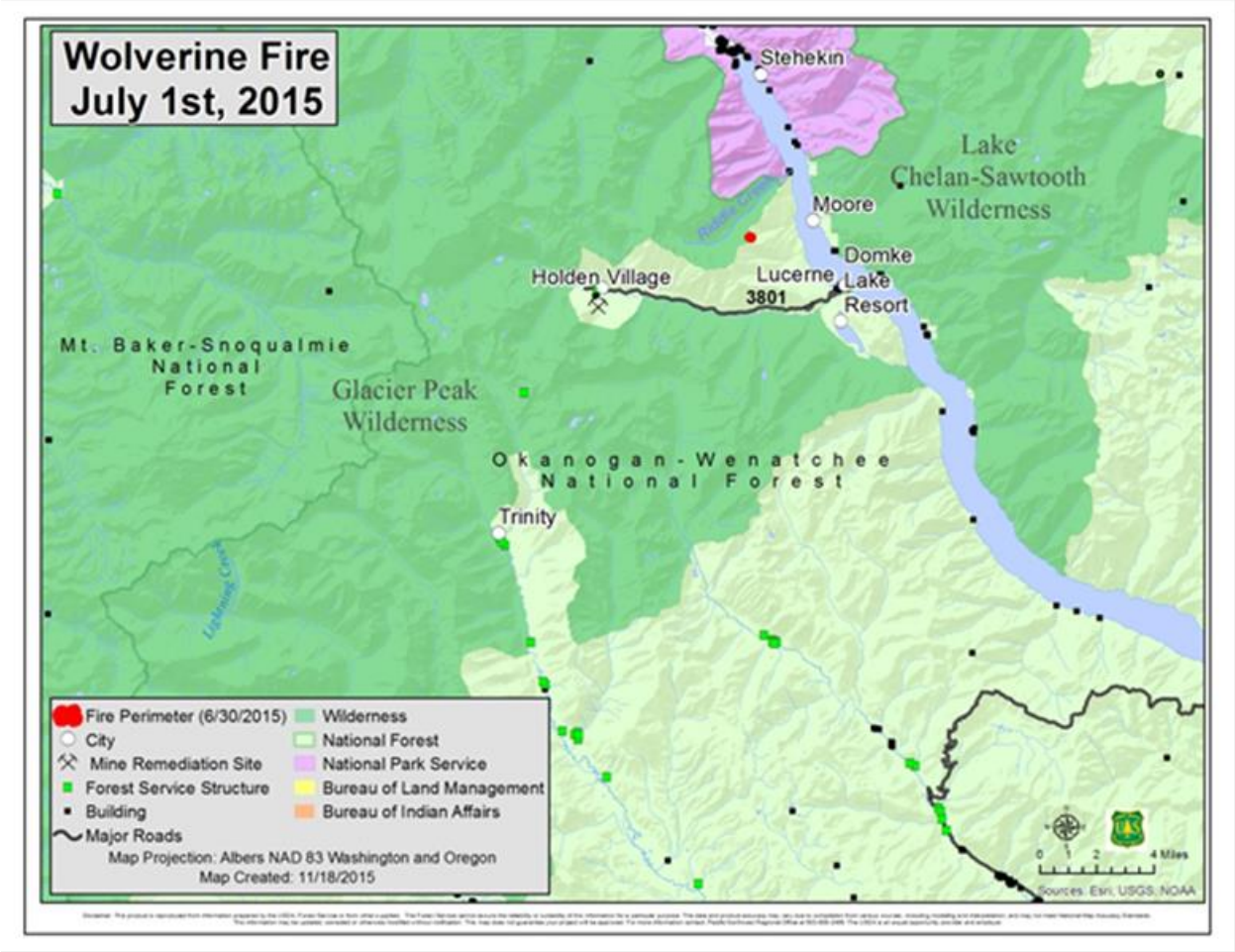
Initial Attack actions are initiated and access is made into the fire by the Wenatchee Valley Rappellers. A helispot is established and the rappellers are inserted to evaluate the potential for ensuring safe fire suppression actions. In addition, the rappel crew is supporting a Type 1 Helicopter making water drops.

June 30

Two Fires: Both Unsafe to Staff

The District Type 3 Incident Management Team takes command of the fire. Fire activity had begun to increase in the morning. The evaluation from the rappel crew to District Fire Staff and Line Officers was that the fire was unsafe to staff. There were two fires. Only the upper fire was accessible. The lower fire may have been a second lightning fire—or caused by roll-out from the upper fire.

With fire below the rappel crew and no escape route or safety zones available from which crews could establish an anchor point, the decision is made to extract the crew and begin to monitor the fire—looking for opportunities to safely engage in suppression operations. Additional water drops made by the Type 1 Helicopter had proved ineffective in suppressing the lower of the two fires.



July 1

Forest Service Road 3801 Identified as Potential Indirect Fire Line

The District meets to start the Wildland Fire Decision Support System (WFDSS) process. Forest Service Road (FR) 3801 (also known as Railroad Creek Road) is identified as a potential holding feature for indirect fire line options for future use.

This road provides the only access to Holden Village and the Holden Mine Remediation Site.

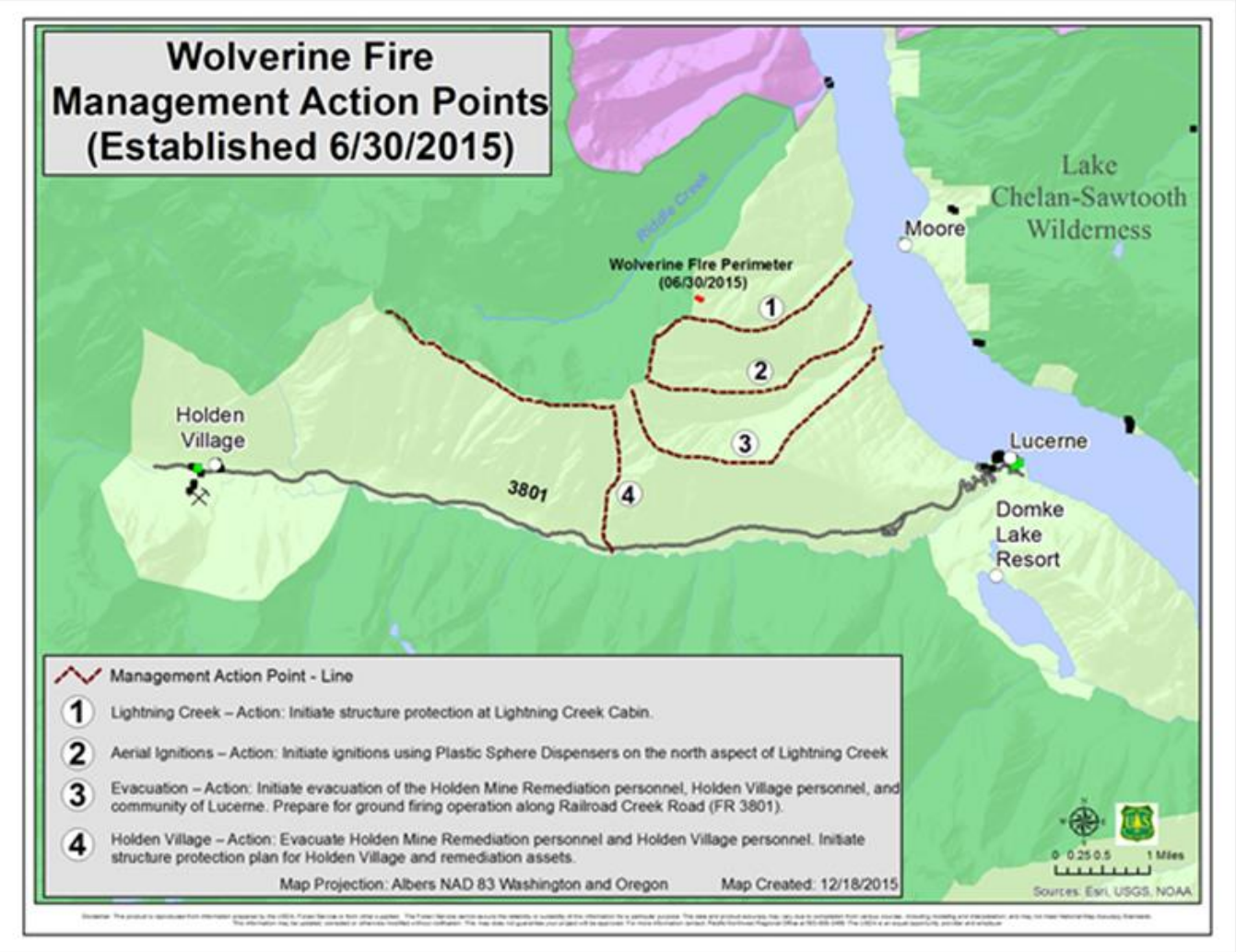
The Zigzag Interagency Hotshot Crew and the Vale Interagency Hotshot Crew begin to prepare the road for possible firing or holding operations at a later date.

July 2

Four Management Action Points Identified

The first WFDSS decision is published. (The WFDSS system assists fire managers and fire analysts in making strategic and tactical decisions for fire incidents.)

This initial WFDSS decision identifies four Management Action Points (MAP). These are clearly specified incident conditions that, when reached, prompt a predefined modification to existing fire management actions, or trigger the implementation of new strategies and/or tactics.



The Four Identified Management Action Points:

MAP 1

Lightning Creek – **Action**: Initiate structure protection at Lightning Creek Cabin.

MAP 2

Aerial Ignitions – **Action**: Initiate ignitions using Plastic Sphere Dispensers on the north aspect of Lightning Creek to maximize low and moderate intensity fire effects within the incident perimeter. *(Definition: A Plastic Sphere Dispenser (PSD) is installed in the passenger compartment of a helicopter and dispenses plastic spheres out the door opening of the aircraft. The ingredients of these plastic spheres cause them to ignite approximately 20 to 30 seconds after dispensation. An operator controls the PSD from the back seat of the aircraft. A burn boss oversees burning operations from the front seat.)*

MAP 3

Evacuation – **Action**: Initiate evacuation of the Holden Mine Remediation personnel, Holden Village personnel, and community of Lucerne. Prepare for ground firing operation along Railroad Creek Road (FR 3801).

MAP 4

Holden Village – **Action**: Evacuate Holden Mine Remediation personnel and Holden Village personnel. Initiate structure protection plan for Holden Village and remediation assets.

July 3

Level 2 Evacuation for Holden Village and Lucerne; Level 3 evacuation for Lightning Creek

Holden Mine Remediation Site.

The Chelan County Sherriff's Office and the National Park Service's North Cascades Unit issue a Level 2 Evacuation Notice ("Be Set to Evacuate") for the communities of Holden Village, the Holden Mine Remediation Project Site, and Lucerne due to the potential threat to Lucerne and Forest Road 3801—which is the evacuation route for Holden Village. Additionally, a Level 3 Evacuation Notice ("Evacuate Immediately: Go") was issued for the Lightning Creek Cabin and for three cabins at Riddle Creek.

In the days following these evacuation notices, practice evacuation drills are performed by both Holden Village and the Holden Mine Remediation Project employees. Coordination with the Lake Chelan Boat Company assists in developing the evacuation plan.

Wolverine Fire blow up. Photo by Steven Mortensen.

The Wolverine Fire was evaluated daily for opportunities to safely engage in suppression operations under conditions which could lead to firefighting success.

July 4 through July 14

Arizona Type 3 IMT Takes Command of Fire

The Arizona Type 3 Incident Management Team (AZ IMT) who was staged in the area takes command of the fire from the District Type 3 organization. The District Assistant Fire Management Officer for operations remains in contact with the Arizona team as a liaison/fire facilitator.

Sprinkler system established for structure protection at Holden Village.

The AZ IMT completed the preparation of Forest Road 3801 and established structure protection equipment and planning for the lakeside improvements, including: Riddle Creek cabins (National Park Service), Lightning Creek Cabin (private), and community of Lucerne (Lucerne Landing and Holden Village), as well as the mine Remediation Site and equipment.

This preplanning included the placement of pumps and hose, fuel mitigation, and the development of structure protection plans for these various locations.

Two additional lightning fires, Lightning Ridge and Tin Pan, were suppressed during the AZ IMT's tenure. Additionally, the Okanogan-Wenatchee National Forest was engaged in active suppression of the 5,000+ acre Newby Lake Fire.

Discussion Held on Aerial Ignition and Firing Operation

Discussions with the District Line Officer and District Fire Staff were ongoing regarding the possibility of using aerial ignition on Lightning Ridge and holding the firing operation along Forest Road 3801. A joint decision was made that this was not the correct time to initiate this action and that the hand line from Lightning Ridge to Lake Chelan had a 50/50 chance of holding during an operation of this type.

Based on the July 12 perimeter mapping, the fire was located approximately 1.25 miles north of the MAP that would have triggered this action. Fire growth during the time period when the AZ IMT was in command was limited, averaging less than five acres per day (source: Fire Progression Map).

If successful, firing Lightning Ridge would have secured the southern perimeter of the fire from the community of Lucerne to Holden Village, but would have also required closing Forest Road 3801. This is the only road access into Holden Village and the Holden Mine Remediation Site. Such a closure would therefore have a negative impact on the operations at Holden Village and would have forced an evacuation of Holden Village and the Holden Mine Remediation Site, causing the remediation work to stop.

July 13

The Blankenship Fire is detected and placed into monitoring status. (For Blankenship Fire location, see map on page 110.)

July 15 through July 26

The Arizona Type 3 organization times out and the District Type 3 organization once again takes command of the Wolverine Fire, monitoring this incident utilizing an aerial observer and both helicopter and boat reconnaissance.

Management Action Points were developed and actions continued to improve structure protection and prepare Forest Road 3801 for any future firing operations. The Wolverine Fire was evaluated daily for opportunities to safely engage in suppression operations under conditions which could lead to firefighting success.

July 27

Fire Activity Increases;
Potential for Uphill Run in Riddle Creek

Fire activity begins to increase as the weather begins to turn warmer and drier. The District's Interagency Hotshot Crew and two Type 2 Initial Attack Crews were ordered for the fire.

Fire perimeters indicate that the fire had spread downslope into the headwaters of Wolverine Creek—a MAP for initiating structure protection for the Lightning Creek Cabin. The fire had also spread to the north and positioned itself into the bottom of Riddle Creek, setting the stage for a possible uphill run to the north.

July 27-29

Smoke Impairs Observation of the Fire

Between July 27-29, smoke impairs observation of the Wolverine Fire. Due to this smoke, it was difficult to conduct aerial or boat-based observations of the fire. Infrared (IR) (a heat detection system used for fire detection, mapping, and hotspot identification) imagery was therefore used to provide the intelligence regarding the Wolverine Fire's location.

Aerial view of the Wolverine Fire on July 27. Photo by EvergreenSoaring.com.

Discussion between the Type 3 Incident Management Team, District Line Officer, and Forest Supervisor led to the decision to notify personnel at Holden Village and Rio Tinto, the mine remediation contractor company, of a Level 3 Evacuation ("Evacuate Immediately: Go"). This decision was relayed via phone by the District's Line Officer to the points of contact for the various affected organizations.

Rio Tinto had earlier requested that they be provided 48-hour notice regarding an evacuation to assure that it could be conducted in an orderly fashion. Personnel being evacuated from the Holden Village

area needed to be transported down-lake by boat. This logistical requirement would slow the final evacuation of personnel from the area.

While the Level 3 Evacuation Notice was made on the evening of July 29, the actual evacuation of personnel did not begin until the following day.

Wolverine Fire Size

(Source: Wolverine Fire Progression Map, August 18, 2015)

Date	Fire Size (acres)	Fire Growth (acres)
June 29	1	
July 5	176	175
July 7	184	8
July 10	203	19
July 11	209	6
July 16	229	20
July 18	253	24
July 20	304	51
July 26	432	128
July 29	580	148

Between July 31 and August 1, approximately 30 structures were saved between Lightning Creek, Riddle Creek, and Lucerne.

Wolverine Resource Status

Incident Status Summary (ICS) 209 information was sporadic during the tenure of the Arizona Type 3 Incident Management Team and the local District Type 3 organization. The ICS 209 reports indicate a total of 117 personnel assigned from July 4 through July 9 associated with four crews, one Type 3 Helicopter, and miscellaneous overhead.

These ICS 209 reports indicate that critical resources were identified by the Type 3 organizations on the Wolverine Fire, including:

July 6 to July 7

2 Type 1 Crews, 2 Type 1 Helicopters, 1 Air Attack Platform for potential firing operations.

July 5 to July 6

(Same critical resources as previously assigned from July 6-7.)

July 4 to July 5

Type 1 Crews and 2 Type 1 Helicopters.

July 4

Type 1 Crews due to steep terrain and remote location.

[Note: While these resources were ordered, the orders were not filled due to local, regional, and national resource shortages during July and August 2015.]

Wolverine Fire Evolution
July 30 through August 3

July 30
Holden Village Evacuation Begins

The evacuation of Holden Village and Rio Tinto, the mine company contractor, personnel began with the extraction of 240 people. The remaining personnel would need to be removed from the fire area the next day.

The Northern Rockies Type 2 Wildland Fire Management Team (WFMT) is ordered to the fire. The intent of this order was to complete a long-range management plan for the incident by providing expertise in strategic planning and obtaining enhanced expertise in firing operations. These skill sets were available to the Forest through this team. They assembled in Missoula with a report date of August 1.

July 31
Fire Activity Increases;
Spotting Distances Reported at One Mile

The remainder of the evacuation of Holden Village personnel is completed. Forest Service trail crew personnel and Rio Tinto personnel who had originally planned to remain in the community had a change of heart and were evacuated from Holden Village using an agency helicopter.

Photo taken on August 1 from Holden Village shows the approaching Wolverine Fire.
Photo by Mario Isaias-Vera.

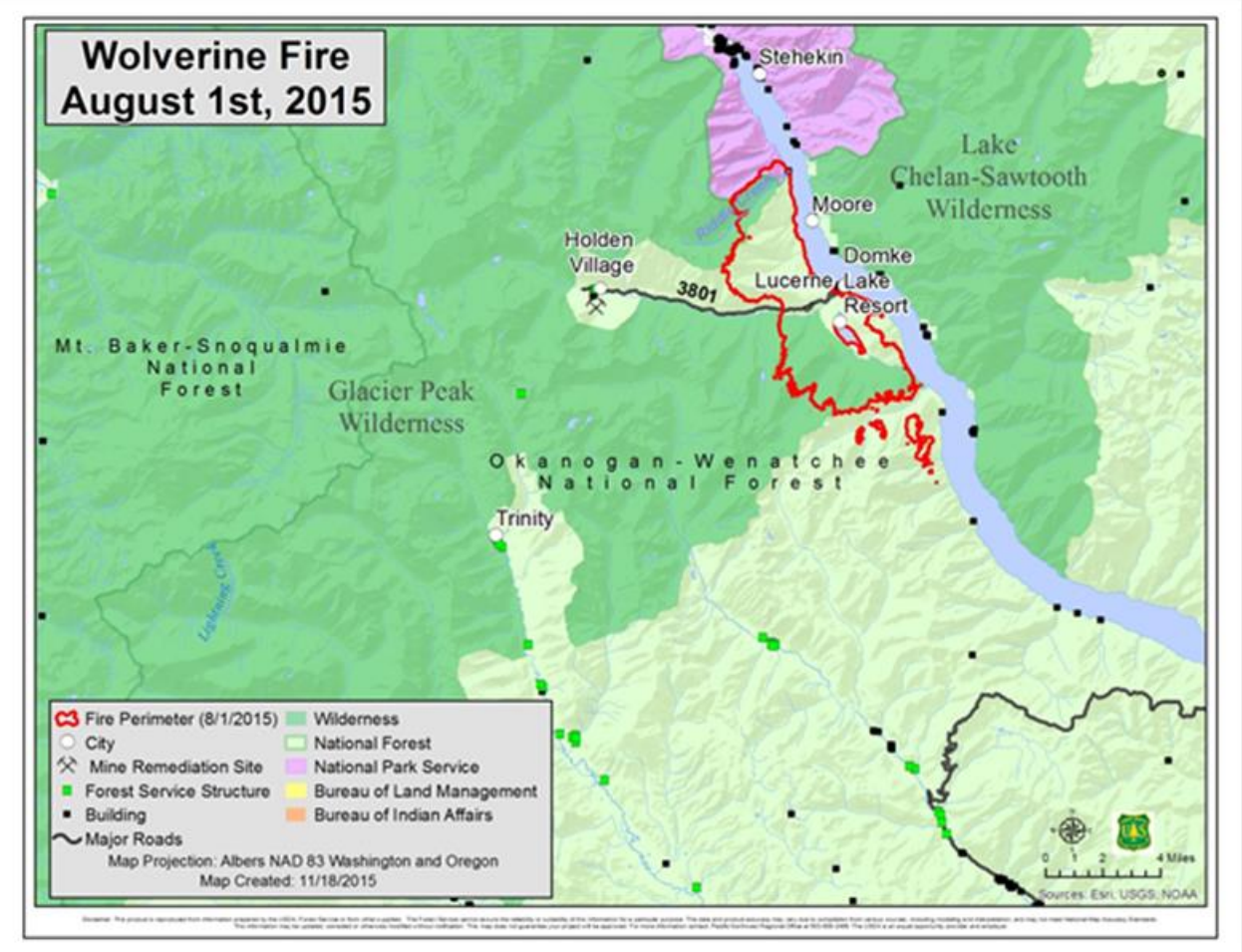
Fire activity increased substantially in the afternoon and remained active into the night. Spotting distances were reported up to one mile. A spot fire was observed in Lightning Creek.

Two Type 1 Helicopters were ordered in an attempt to check the spread of these spot fires—thus, providing time to complete evacuations at Holden Village. By 8 p.m., a spot fire was reported on the south side of Forest Road 3801, spreading toward Domke Lake.

Successful Burn Out Operation Saves Community of Lucerne

As the fire approached Lucerne, structure protection equipment established by the Arizona Type 3 Incident Management Team was staffed by crews in the Lucerne area. A burn out operation led by Forest Service crews and supported by six fire line-qualified personnel from Pool Engineering were successful in protecting all structures in the community. The pre-positioning of equipment and personnel in Lucerne was critical to the overall success of this portion of the operation.

In the Domke Lake area, five structures were lost. Structure protection had not been established prior to July 31. The limited access into the Domke Lake area precluded the rapid deployment of firefighting resources. The caretaker at the Domke Lake Resort took refuge in a boat on the lake. (This individual also did so during the 2007 Domke Lake Fire.) The caretaker had previously evacuated his guests and was the only person present at the resort.



August 1

Fire's Rapid Growth Requires a Level 1 Complexity

The Wolverine Fire made a substantial run today—growing by more than 12,000 acres. The Northern Rockies Type 2 Wildland Fire Management Team was in-briefed. At the same time, the Forest recognized that—with this fire's rapid escalation—it was now an incident of (increased) Type 1 complexity.

The Northern Rockies Type 2 Wildland Fire Management Team received a Delegation of Authority from the Forest and was able to support the Type 3 organization by inserting a Division Supervisor into Holden to facilitate structure protection needs. This action provided operational support for the "point protection" of values along the shores of Lake Chelan. It also facilitated the development of two incident bases to support the perceived needs of the incoming Type 1 Incident Management Team.

Between July 31 and August 1, approximately 30 structures were saved between Lightning Creek, Riddle Creek, and Lucerne.

August 2

Focus Remains on Protection of Homes

The Northern Rockies Type 2 Wildland Fire Management Team was in command of the incident with members of Pacific Northwest Team #2, and the incoming Type 1 Incident Management Team.

Focus remained on point protection and development of the logistical support structure needed for a large-scale fire suppression operation. The Type 3 organization had transitioned out of any management role.

A contentious public meeting is held in Chelan with the public questioning why the Wolverine Fire had not been suppressed weeks earlier. The general feeling from those in attendance was that the Forest Service had been negligent in its response to the fire.

The incoming Type 1 Incident Commander informed that the fire had a potential of spreading south as far as 25 Mile Creek, 15 miles from the fire's current location.

August 3

PNW Team #2 to Manage
Wolverine and Blankenship Fires

The Northern Rockies Type 2 Wildland Fire Management Team remains in command.

The Pacific Northwest Team #2 is in-briefed and begins "shadowing" this team. Their comprehensive in-brief package from the Forest included a Delegation of Authority to manage the Wolverine and Blankenship fires.

The Blankenship Fire started on July 13 and was in monitoring status at approximately 170 acres.

For Interactive Map: http://arcg.is/1lPmzqt

Wolverine Fire Size

(Source: Wolverine Fire Progression Map, August 18, 2015)

Date	Fire Size (acres)	Fire Growth (acres)
July 30	1,526	946
July 31	3,714	2,188
August 1	15,760	12,046
August 2	-	-
August 3	24,480	8,720

Resource Status

Resources assigned for this time period are not indicated on the available ICS 209s.

Common critical resource needs identified were: Type 1 Crews (2), Type 2 Initial Attack Crews (2), and a Wildland Fire Module.

Wolverine Fire Evolution

August 4 through August 20

August 4

Wolverine Fire Now Threatens Community of Stehekin

When the Pacific Northwest Team #2 takes command, the Wolverine Fire is rapidly growing in different directions with limited control on any portion of the incident.

Point protection was in place for values at risk along the shore of Lake Chelan and for the communities of Holden Village, Lucerne, and the Holden Mine Remediation Site.

The current Wolverine Fire threat was to the community of Stehekin, located to the north of the current fire perimeter. Stehekin is accessible by aircraft or boat only from the Lucerne landing on Lake Chelan.

Two natural features were identified as partial barriers to the fire to prevent spread to the north. The Operations Section Chief selected the Castle Creek drainage and committed crews to construct indirect fire line and a firing operation to secure the Wolverine Fire's north flank.

Additionally, the Type 1 Incident Management Team began operations to open fuel breaks that were established during the 2004 Deep Harbor Fire. While these control features were approximately 13 to 14 miles south of the current Wolverine Fire perimeter, they were deemed necessary to protect 25 Mile State Park as well as 40 to 50 structures located along South Shore Drive near the community of Chelan.

August 5

Type 1 IMT also Takes Command of the Goode Fire

The second WFDSS Decision is published. The Type 1 Incident Management Team takes command of the Goode Fire in North Cascades National Park. This was an inactive fire that had been staffed and contained by eight smokejumpers and a Type 4 Incident Commander.

Potential conflicts with aviation management between the Goode Fire and Wolverine Fire at Stehekin Airport were identified as the rationale to include the Goode Fire under the management of the Type 1 IMT.

August 6

Incident Command Post Moves from 25 Mile Location to Chelan Falls

Because communications, crew movement, and general logistical support proved to be ongoing issues at the 25 Mile Incident Command Post (ICP), the Pacific Northwest Team #2 makes the decision to move the incident base from 25 Mile south to Chelan Falls.

This move to Chelan Falls removed the ICP from any hazard associated with the fire moving to the south and also enhanced transportation routes and general logistics on the fire. The Incident Management Team also had been delegated Initial Attack responsibilities from the Forest. The new Chelan ICP location better supported the need to redeem this Initial Attack responsibility.

August 7

Development of Strategic Plan for Firing
to Protect Holden Village and Remediation Site

Planning begins for a multiday firing operation in the Railroad Creek drainage to secure the structures, equipment, and infrastructure in Holden Village and at the Remediation Site. Based on observed and predicted fire behavior, the use of direct suppression actions were considered—but determined to be of high-risk to firefighter safety.

The use of retardant and water was also evaluated, but was considered to have a low probability of success. Therefore, the decision to implement a strategic firing operation was considered the option with the greatest probability of success and was vetted with Forest staff and involved stakeholders.

Successful completion of this firing operation expedited the strategic objectives of securing Holden Village and the Remediation Site and also facilitated the reentry of the residents of Holden Village and the Rio Tinto mine company staff.

August 8-11

Community of Stehekin is Protected;
Fire Spreads to West; Lightning Forecasted Later in Week

Indirect fire line, completed and fired out from Castle Creek, secures the northern portion of the incident and provides protection to the community of Stehekin. However, during this time period, the fire finds a pathway to spread westerly, burning approximately 7,300 acres. While there were no values at risk immediately identified to the west, this expansion repositioned the fire to allow for movement to the south, eventually threatening the communities of Plain and Leavenworth.

On August 10, the North Cascades National Park takes the Goode Fire back from the Type 1 IMT. The Blankenship Fire remains in monitor status after being evaluated by a Forest Service Hotshot Superintendent who reported that only through the use of “heavy-handed” suppression tactics could the Blankenship Fire be contained. Because the fire had not displayed significant movement and was primarily contained in rock scree and riparian drainages, the decision was made to not undertake such a tactic.

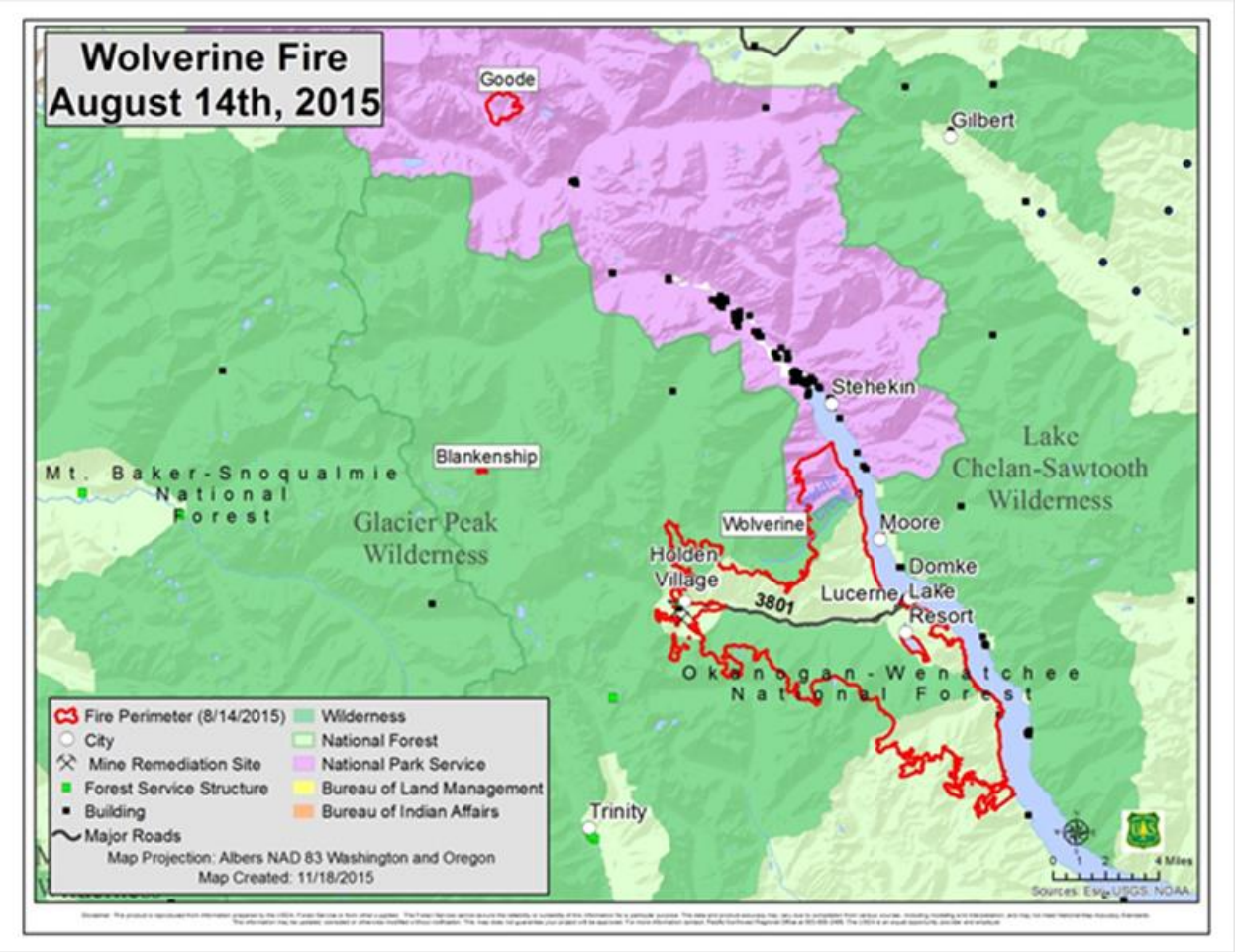
On August 11, the Fire Weather Forecast calls for lightning later in the week. No formal preplanning for this weather event is undertaken by the IMT at this time.

August 14

Thunderstorm Starts New Fires

At approximately 5:30 a.m., a thunderstorm begins to impact the Wolverine Fire area. While this storm produced minimal effect on the Wolverine Fire, it proved to highly impact the Type 1 IMT with Initial Attack fires in the Chelan area. From the Incident Command Post, two fires could be seen. The smoke column from the Antoine Fire was also visible over a ridge.

That morning, an estimated 600 firefighting personnel were mobilized from the Wolverine Fire to support new fires on Bureau of Land Management and Chelan County jurisdictions. The fires supported included: First Creek, Antoine, McFarland Creek (originally Squaw Creek), Black Canyon, Reach and Cagle.



Operations personnel took the lead on Initial Attack suppression command working with the Chelan Fire District and Chelan Sheriff's Department to provide structure protection, perimeter control, and evacuation support.

August 15

Pacific Northwest Team #2 Manages New Fires—
Along with the Wolverine and Blankenship Fires

The Pacific Northwest Team #2 receives a multi-agency delegation to manage the new fires in the Chelan area. This delegation covered the Reach, Antoine, Cagle, First Creek, McFarland, and Black Canyon fires—while also retaining command of the Wolverine and Blankenship fires.

August 16-20

Suppression Actions Focus On
Securing Holden Village and Forest Road 3801

The Pacific Northwest Team #2 was required to split its team attention between the new fires that eventually became the Chelan Complex and command of the Wolverine Fire.

Actions were focused on securing Holden Village and Forest Road 3801 to ensure that access could be provided to the Holden Mine Remediation Site and the Level 3 Evacuation could be lifted.

The Wolverine Fire burns toward Lake Chelan on August 12. Photo by Kari Greer, U.S. Forest Service.

Work also continued to secure improvements along the shoreline of Lake Chelan. However, because the fire was not able to be stabilized to the point where public safety could be assured, the evacuations and closures remained in place.

Transfer of command to the Southwest Area Incident Management Team #1 occurred at 6 a.m. the following morning, August 21.

Wolverine Fire Size

(Source: Wolverine Fire Progression Map, August 18, 2015, ICS 209s)

Date	Fire Size (acres)	Fire Growth (acres)
August 4	25,635	1,155
August 5	-	-
August 6	26,614	979
August 7	27,400	786
August 8	28,725	1,325
August 9	-	-
August 10	-	-
August 11	36,030	7,305
August 12	37,010	1,093
August 13	37,792	782
August 14	38,793	1,001
August 15	39,989	1,196
August 16	40,357	368
August 17	40470	113
August 18	40,904	434
August 19	42,876	1,972
August 20	45,929	3,053

Resource Status

Resources assigned to the incident varied during this time period with lend/lease of resources occurring with the Chelan Complex and other fires managed by this Incident Management Team.

At the peak of activity, the maximum number of resources assigned included:

- 16 Crews (all types)
- 20 Engines
- 4 Dozers
- 7 Water Tenders
- 571 Overhead

Ten aircraft were assigned to the fire including 2 Air Attack Platforms, 4 Type 1 Helicopters, 1 Type 2 Helicopter, and 3 Type 3 Helicopters.

No fire retardant was used on either the Wolverine or Blankenship fires as steep slopes and dense canopy prevented retardant from being effective unless ground personnel could be deployed to support the drops.

August 21

Transfer of Command

Occurs on Wolverine and Blankenship Fires

Transfer of command of the Wolverine and Blankenship fires occurred on the morning of August 21 to Templin's Southwest Area Type 1 Incident Management Team.

This IMT was also delegated command of the Chelan Complex. The Wolverine Fire was just coming out of a Red Flag Warning for strong winds the previous night. The fire, once again, was actively spreading.

On August 21, the fire enters the headwaters of the Entiat River. This requires a strategic multi-agency planning effort for the protection of improvements in the Entiat Valley (see photo on next page). This planning effort was evaluating communities as far south as Leavenworth and Plain.

Completed segment of Community Protection Line along Chiwawa Road near Twin Lakes, Washington. Photo by Lakewenatcheeinfo.com.

The Wolverine Fire is actively spreading on August 24. Photo by Kari Greer, U.S. Forest Service.

The Southwest Area IMT was also managing the active First Creek Fire and Chelan Complex while fire activity was also increasing on the Wolverine Fire.

August 22

Fire Spreads into Entiat Valley; Structure Protection Actions Implemented in Stehekin

The fire spreads into the Entiat Valley. There is a need to contain a fire "slop-over" in the Castle Creek area on the north end of the fire that has a potential to impact the community of Stehekin. Structure protection preparation actions were ongoing in Stehekin.

Critical resource needs begin to appear on the IMT's Incident Status Summary (ICS) 209 reports, which—at this point in time—was: "Type 1 and Type 2 Initial Attack Crews and Overhead".

This photo, taken on August 31, shows Entiat Valley homes saved from the Wolverine Fire.
Photo by Kari Greer, U.S. Forest Service.

August 23-24

Fire Places New Communities
and Infrastructure at Risk

Fire continues to spread down the Entiat Valley—moving as far as 1.5 to 2 miles during an operational period—placing new communities and infrastructure at risk.

An evacuation and closure plan is in the development stage for the Entiat Valley. The Forest expands its closure area. Structure protection is established at Silver Falls. In addition, structure protection actions/mop-up continues to finally secure the communities of Holden Village and Lucerne.

August 25-26

Community Protection Begins for Plain and Entiat Valley

Action begins on the development of Community Protection Lines for Plain and the Entiat Valley. This work is south of the main fire and required the coordination of District and Forest Resource Specialists as substantial "logging" practices needed to be implemented to create the shaded fuel break that would serve as a potential fire control feature for these communities.

Level 1 Evacuations—*"Be aware of the situation: BE READY"*—were in place for the Potato Creek area and Level 2 Evacuations—*"Be Set to Evacuate"*—were in place for Plain to Preston Creek, representing approximately 209 structures.

Critical needs on the ICS 209s begin to list specialized equipment to conduct this operation, including: feller-bunchers, processors, various masticators, as well as Heavy Equipment Bosses and other mid-level overhead positions.

August 27

Still Need Specialized Equipment
to Conduct Necessary Suppression Operations

Efforts remained focused on construction of the Community Protection Lines and with staffing the point protection needs at various locations along the Wolverine Fire's perimeter.

The critical needs list from the ICS 209 still indicates the need for specialized equipment to complete the work associated with these lines. While the fire remained active again during this day, a weather forecast for rain was issued.

August 28 – September 7

Residents Return to Lucerne and Holden Village;
Rain and Snow Occurs on September 6

A significant weather change influenced the fire area during this time period. The first measurable rain for the fire area was reported on August 28. While this rain slowed fire spread, it was not deemed to be a season-ending event. Work therefore continued to construct indirect and Community Protection Lines to ensure that if the warmer/drier conditions returned, these strategic control features would be complete.

Planning for the repopulation of Lucerne and Holden Village began during this time period. Employees of Rio Tinto, the mine company contractor, and Holden Village were allowed back into the area for assessment of their property and equipment while a greater area closure remained in effect.

On September 1, the California Type 1 Incident Management Team #5 takes command of the Chelan Complex.

A reduction in the evacuation levels occurred on September 2 in the Potato Creek and Plain areas. Work continued on the development of the Community Protection Lines, with specialized equipment remaining a "Critical Need" identified on the ICS 209s.

Additional rain and snow influenced the fire area on September 6. The Entiat to Sugarloaf portion of the Community Protection Line was complete while operations on the Sugarloaf to Twin Lakes area were ongoing.

On September 8, the Rabe Type 2 Incident Management Team assumed command of the fire.

This photo, taken on August 31, shows how suppression protection efforts helped to save the community of Holden Village from the Wolverine Fire. Photo by Kari Greer, U.S. Forest Service.

Wolverine Fire Size
(Source: ICS 209s)

Date	Fire Size (acres)	Fire Growth (acres)
August 21	49,570	3,641
August 22	52,001	2,431
August 23	53,571	1,570
August 24	59,956	6,385
August 25	61,069	1,110
August 26	62,167	1,098
August 27	64,776	2,609
August 28	64,940	164
August 29	64,940	-
August 30	64,940	-
August 31	64,940	-
September 1	65,275	335
September 2	65,275	-
September 3	65,275	-
September 4	65,275	-
September 5	65,275	-
September 6	65,275	-
September 7	65,275	-

[Note: Fire size on October 6, 2015 was listed as 65,512 acres and was not expected to grow any larger.]

Resource Status

Resources assigned to the Wolverine Fire varied during this time period with lend/lease of resources occurring with the Chelan and Okanagan Complexes.

At the peak of fire activity, the maximum number of resources assigned included:

- 26 Crews (all types)
- 104 Engines
- 23 Dozers
- 39 Water Tenders
- 7 Type 1 Helicopters
- 5 Type 3 Helicopters

Appendix G – Corner Creek Fire

For Interactive Map: http://arcg.is/1XxBLEh

Corner Creek Fire

Date of Ignition
June 29, 2015

Cause
Lightning

Land Ownership at Fire Origin
U.S. Forest Service

Responding Initial Attack Resources
2 Type 1 Hotshot Crews, 1 Type 2 Crew, 1 Dozer, 3 Type 6 Engines, 3 Helicopters, 1 Very Large Air Tanker, 3 Heavy Air Tankers,
1 Type 3 Incident Commander

Preparedness Level at Time of Ignition
National: PL 3
Local: PL 3

Acres Burned
29,660 Acres

Estimated Cost
$12,800,000

Land Jurisdictions
Ochoco National Forest, Bureau of Land Management, private

Resources at Incident Peak
Total Personnel: 999
Crews: 34
Engines: 47
Helicopters: 17

Structures Destroyed
1 Trailer

Cooperators
Oregon Department of Forestry, Bureau of Land Management, Crook County, Grant County, U.S. Forest Service

Aggressive Initial Attack Actions

The Corner Creek Fire was ignited by lightning on Monday June 29, at approximately 3:17 p.m. near the Black Canyon Wilderness Area border on the Ochoco National Forest. The fire was located approximately 11 miles south of the community of Dayville, Oregon.

A Very Large Air Tanker (a DC-10 jet) prepares to drop a load of retardant on the Corner Creek Fire on June 30, the fire's second day.

Photo by Todd McKinley.

Two days prior, the nearby Sugarloaf Fire had ignited. On the same day that the Corner Creek Fire started, the Blue Basin Fire also ignited to the west inside the John Day Fossil Beds National Monument and the Schoolhouse Gulch Fire started on private land to the north.

By July 1, these three fires—the Sugarloaf, Schoolhouse Gulch, and Blue Basin—totaled approximately 5,200 acres. All three fires were managed by the Oregon Department of Forestry Type 1 Incident Management Team #1. Their Incident Command Post was located in Dayville.

The Corner Creek Fire, now 6,000 acres in size, was added to this IMT's workload on July 1.

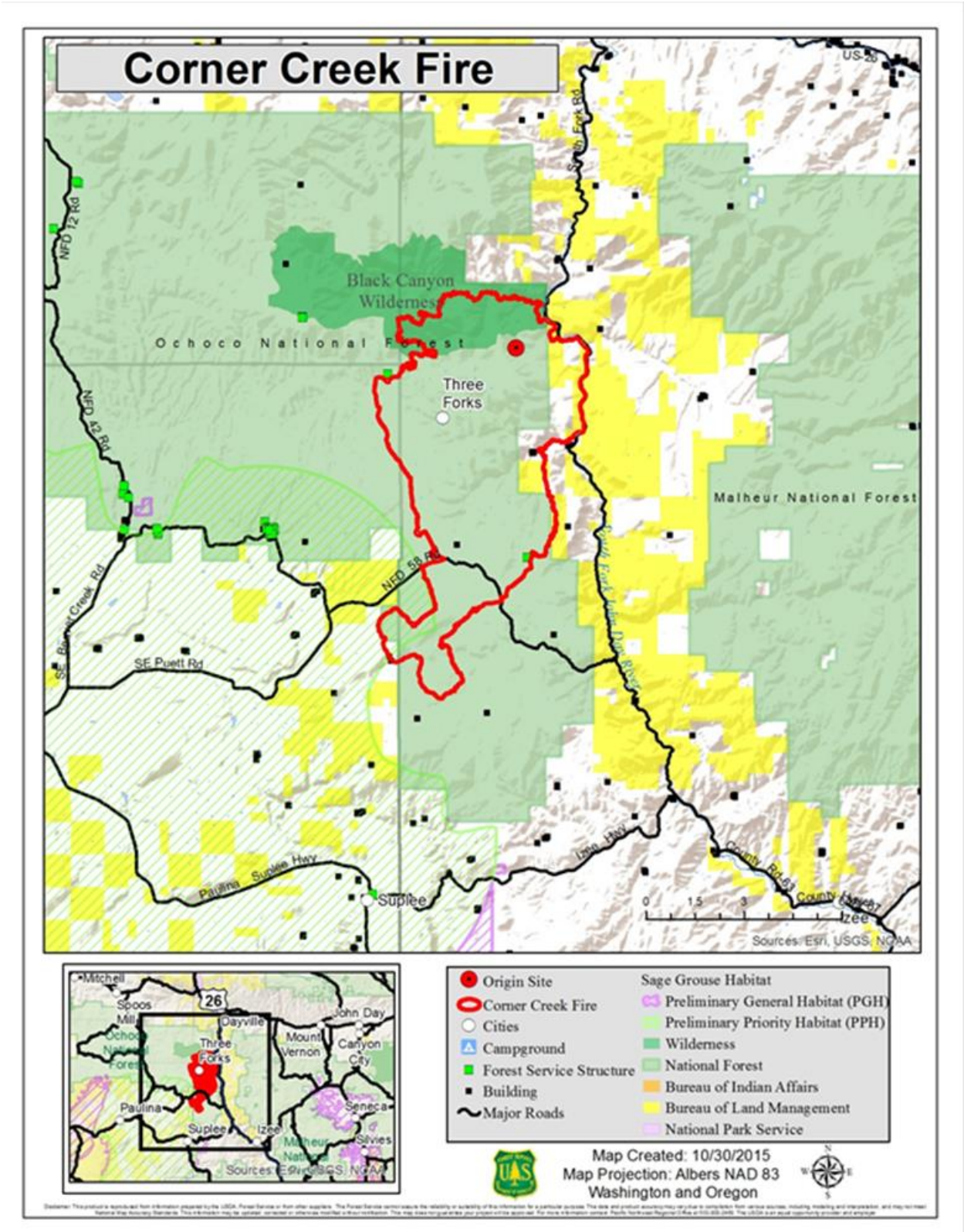
Suppression Actions and Challenges
The Initial Attack was aggressive on the Corner Creek Fire with a Type 3 Incident Commander, 2 Interagency Hotshot Crews, 1 Type 2 Crew, 1 Dozer, 3 Engines, 3 Helicopters, 1 Very Large Air Tanker, and 3 Heavy Air Tankers.

While Air Attack was not immediately available, Corner Creek Fire incident reports indicate the deployment of 1 Very Large Air Tanker (shown in photo above), 3 Heavy Air Tankers, 3 Single Engine Air Tankers, and 3 Helicopters through July 1.

Key Objective: Prevent Damage to Private Property
The fire exhibited notable wind-driven runs to the south and west.

A key management objective was to prevent damage to private property, both ranches and residences.

Initial Attack resources completed a dozer line around the private Rock Pile Ranch—which was located directly in the fire's path. Initially, a total of four residences and their outbuildings were threatened. Ranchers had already turned out their livestock onto their summer range allotments. They now had to move their animals out of the approaching fire's path.


Corner Creek Fire
Black Canyon Wilderness
Ochoco National Forest
Three Forks
Malheur National Forest
NFD 12 Rd
NFD 42 Rd
NFD 58 Rd
SE Puett Rd
SE Bamford Creek Rd
South Fork Rd
South Fork John Day River
Izee
Suplee
Paulina Suplee Hwy
Izee Hwy
County Rd 61
US 26
0 1.5 3
Sources: Esri, USGS, NOAA
Mitchell
Spoos Mill
Dayville
John Day
Mount Vernon
Canyon City
Seneca
Silvies
Origin Site
Corner Creek Fire
Cities
Campground
Forest Service Structure
Building
Major Roads
Sage Grouse Habitat
Preliminary General Habitat (PGH)
Preliminary Priority Habitat (PPH)
Wilderness
National Forest
Bureau of Indian Affairs
Bureau of Land Management
National Park Service
Map Created: 10/30/2015
Map Projection: Albers NAD 83
Washington and Oregon

Management Objectives
The Corner Creek Fire was managed as a 100 percent suppression operation.

Incident managers focused on keeping the fire west of the South Fork of the John Day River (a designated Wild and Scenic River). Their objective was to prevent the fire from entering the "High Priority" sage-grouse habitat to the southwest.

The John Day watershed contains bull trout and anadromous fish that required caution when using retardant near waterways.

The fire also spread into the Black Canyon Wilderness, requiring Hotshot Crews to perform suppression actions.

Red Flag Warnings and Inversions
The weather was not favorable for early containment of the Corner Creek Fire. The July 2 weather forecast predicted thunderstorms and winds out of the north at 12 mph, with gusts up to 25 mph.

Recent Fuel Treatment Areas Helped Firefighters Control the Corner Creek Fire Growth

Recent fuel treatments on the Ochoco National Forest and Prineville Bureau of Land Management District likely helped prevent the Corner Creek Fire's spread.

"Places that were treated had better fire effects, mostly low intensity and just burning grass and dead stuff below the timber," explained Type 3 Incident Commander Jeff Priest. "These treated areas also helped our holding efforts—while the untreated areas caused us more control problems."

A recent U.S. Forest Service briefing paper helped to confirm that these previous fuel treatments were very effective in helping firefighters control the growth of the Corner Creek Fire.

"It really reduced the amount of fuel that the fire had to burn," said Patrick Lair, Public Affairs Specialist with the Ochoco National Forest. "The intensity of that fire dropped way down in those places. That really gives firefighters the ability to go in and put in a direct line. In other words, they can get in front of it."

The paper "Fuel Treatment Effectiveness on the Corner Creek Fire" (Hallmark and Romero 2015) concluded that prior fuel treatments contributed to the safer, more effective control of the fire. The report also confirmed that these prior fuel treatments minimized damage to natural resources and improved ecological outcomes.

The suppression efforts on the Corner Creek Fire exemplify the effort required to prevent a wildfire from entering "High Priority" sage-grouse habitat.

While 89 percent of the acreage burned on this fire occurred during the fire's first six days, these existing fuel treatments—in combination with aggressive fire suppression, sufficient resources, and moderating weather—contributed to the containment of the fire outside critical sage-grouse habitat.

The Corner Creek Fire continues to burn under an inversion. Photo taken on July 3 by the Oregon Department of Forestry.

Firefighters faced hot temperatures, low relative humidity, very dry fuels, and gusty winds that often led to Red Flag Watches as well as Red Flag Warnings.

When the inversion (shown on left) lifted, a pyrocumulus cloud developed that resulted in wind/terrain-driven fire runs. (A pyrocumulus cloud, also known as a "fire cloud", can produce dry lightning and, with its strong winds, can function as a firestorm.)

This image shows the change in the Corner Creek Fire perimeter over the course of six days—burning more than 26,000 acres.

The Black Canyon Wilderness is the high ground to the north.

The South Fork of the John Day River is the valley to the right.

The "High Priority" sage-grouse habitat is located to the left of this image.

This image of the landscape shows the Corner Creek Fire perimeter (in red) at 1 a.m. on July 5 compared to the fire's perimeter approximately 48 hours earlier (in white).

Image courtesy of Bill Gabbert, Wildfire Today.

Corner Creek Fire Resources

Date	Acres	Percent Contained	Personnel	Crews	Engines	Helicopters	Cost to Date
Jul. 1	6,000	0	75	3	3	0	$100K
Jul. 2	7,500	0	168	7	3	0	$600K
Jul. 3	14,500	0	434	18	16	0	$1.1 Million
Jul. 4	19,232	5	621	26	24	0	$1.7 Million
Jul. 5	19,450	10	779	30	34	0	$2.0 Million
Jul. 6	26,414	15	796	30	41	1	$3.1 Million
Jul. 7	26,517	15	845	32	43	0	$4.3 Million
Jul. 8	27,166	40	866	32	47	7	$6.4 Million
Jul. 9	27,166	40	866	32	47	7	$6.4 Million
Jul. 10	29,407	60	999	34	38	12	$10.6 Million
Jul. 11	29,407	70	804	26	25	17	No data
Jul. 12	29,407	75	510	14	15	17	$11.2 Million
Jul. 13	29,407	80	334	8	11	2	$12.0 Million
Jul. 14	29,407	80	334	8	11	2	$12.0 Million
Jul. 15	29,407	85	120	0	9	2	$12.4 Million
Jul. 16	29,407	85	101	0	9	2	$12.1 Million
Jul. 17	29,407	90	97	0	9	2	$12.0 Million
Jul. 18	29,407	90	124	1	9	2	$12.2 Million
Jul. 19	29,657	90	168	3	9	2	$12.3 Million
Jul. 20	29,657	90	160	3	7	2	$12.4 Million
Jul. 21	29,660	90	160	3	7	2	$12.6 Million
Jul. 22	29,660	95	104	2	3	0	$12.8 Million

Areas shaded in green represent the highest resource numbers.

(Note: Air Tanker resources are not mentioned in the ICS 209 daily reports.)

Appendix H – Newby Lake Fire

For Interactive Map: http://arcg.is/1NlylmN

Newby Lake Fire
(Originally known as the "Arnold Peak Fire" from 7/2-7/4. On 7/21 renamed "Newby Lake Long Draw Fire".)

Date of Ignition
July 2, 2015

Cause
Lightning

Land Ownership at Fire Origin
British Columbia, Canada

Responding Initial Attack
2 Air Tankers and Initial Attack Crew with Helicopter

Preparedness Level at Time of Ignition
National: PL 3
Local: PL 3

Acres Burned
"Newby Lake Fire": 5,065 Acres
"Newby Lake Long Draw Fire": No additional Acres

Estimated Cost
"Newby Lake Fire": $7,282,432 (as of 7/19/15)
"Newby Lake Long Draw Fire": Projected Final Estimate: $500,000 (as of 7/26/15)

Land Jurisdictions
Okanogan-Wenatchee National Forest; Washington State Department of Natural Resources; British Columbia, Canada

Resources at Incident Peak
Crews: 12
Engines: 17
Helicopters: 13

Structures Destroyed
0

Cooperators
U.S. Forest Service, Washington State Department of Natural Resources, British Columbia's Ministry of Forest Lands and Natural Resources Operations, U.S. Customs and Border Protection, Canada's Border Services Agency

The Newby Lake Fire on July 2, the day it is reported. Photo taken from a British Columbia Air Tanker.

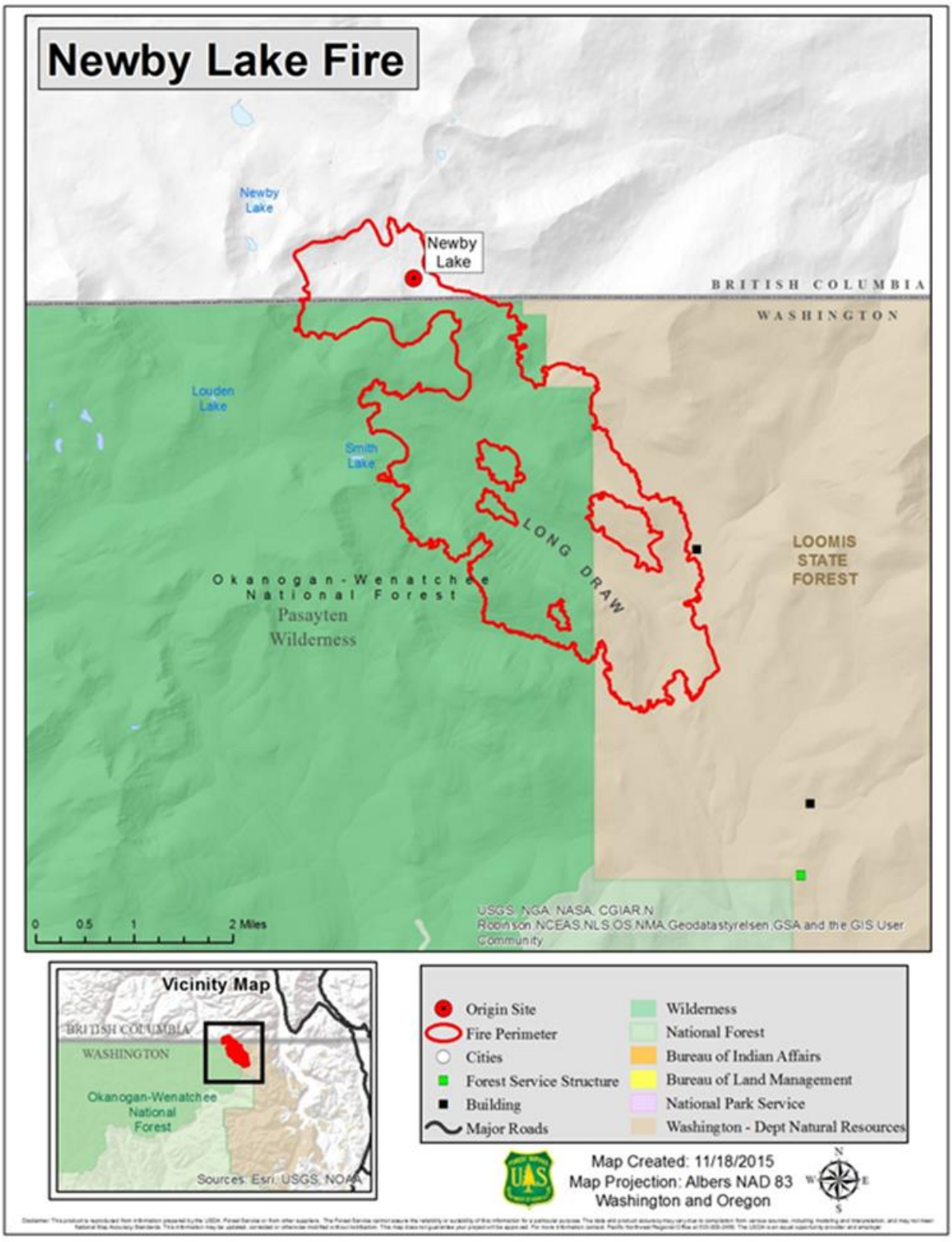
The lightning-caused Newby Lake Fire (named Arnold Peak on the original Incident Status Summary [ICS 209]) started on July 2 at approximately 3 p.m.

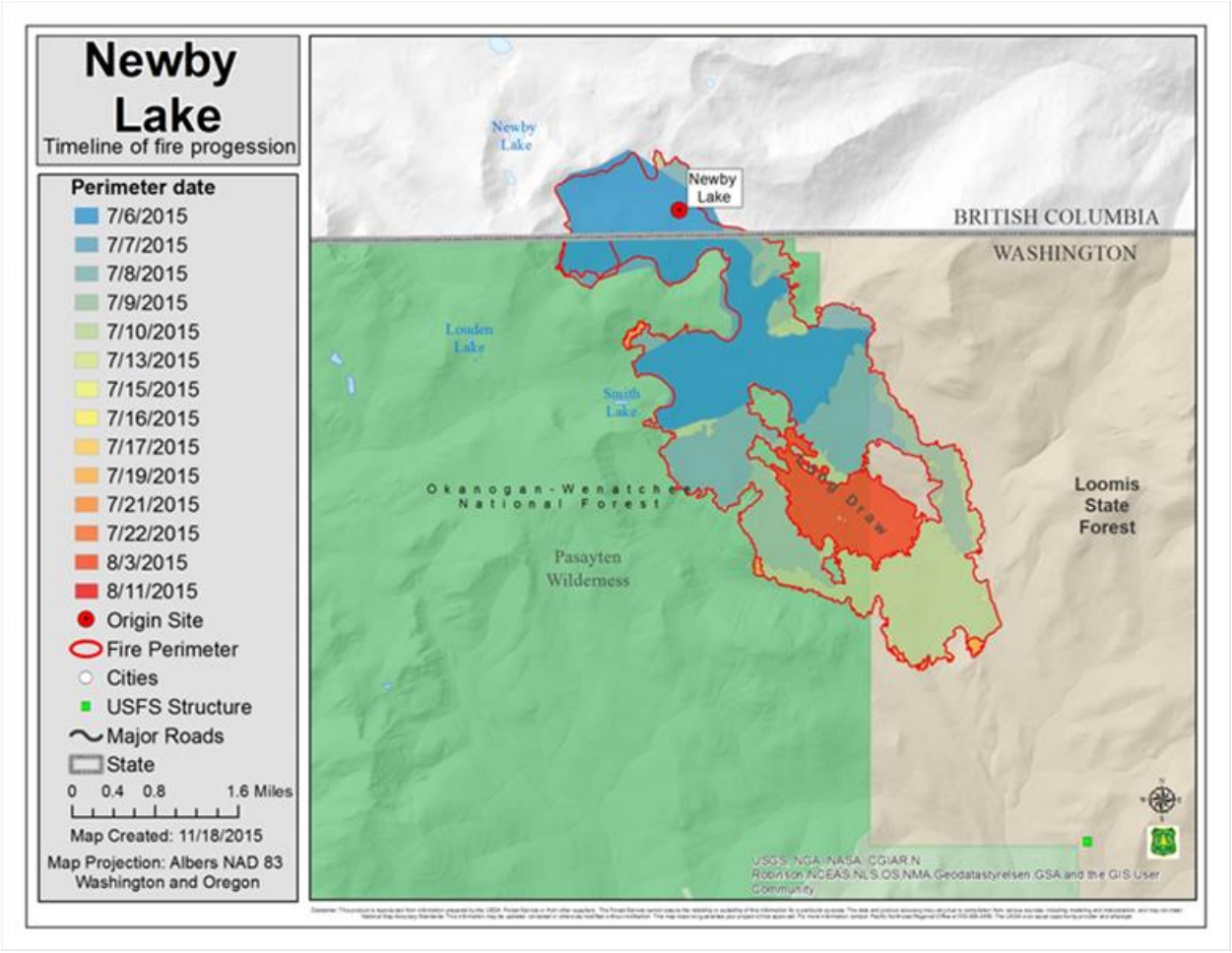
The fire originated in Canada and burned into the United States onto Okanogan-Wenatchee National Forest lands.

A British Columbia Wildfire Service release issued at 7 p.m. on the fire's first day stated: *"B.C. Wildfire Service initially sent Air Tankers and an Initial Attack Crew by helicopter, but unfortunately, neither were able to action the fire due to fire behavior, crew safety, and the lack of achievable objectives."*

If Fire Managers Decide to Suppress Fire – Could Need Type 1 Crew
The ICS 209 on July 2 showed 115 acres (one-half of the total acres, split between the U.S. and Canada). It further stated: *"Fire managers are discussing whether to monitor or suppress this fire at this time."* Weather Concerns noted on this ICS 209: *"Red Flag Warnings for winds and low relative humidity for the next several days . . . Moderate fire spread is possible with current weather pattern."*

Additional ICS 209 notes included: *"No threats at this time due to remote location. Could potentially need Type 1 Crew if fire managers choose the suppression route. No resources assigned at this time."*


Newby Lake Fire
Newby Lake
Newby Lake
BRITISH COLUMBIA
WASHINGTON
Louden Lake
Smith Lake
LONG DRAW
LOOMIS STATE FOREST
Okanogan-Wenatchee National Forest
Pasayten Wilderness
0 0.5 1 2 Miles
USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, GSA and the GIS User Community
Vicinity Map
BRITISH COLUMBIA
WASHINGTON
Okanogan-Wenatchee National Forest
Sources: Esri, USGS, NOAA
Origin Site
Fire Perimeter
Cities
Forest Service Structure
Building
Major Roads
Wilderness
National Forest
Bureau of Indian Affairs
Bureau of Land Management
National Park Service
Washington - Dept Natural Resources
Map Created: 11/18/2015
Map Projection: Albers NAD 83
Washington and Oregon
N
W
E
S


Newby Lake
Timeline of fire progession
Perimeter date
7/6/2015
7/7/2015
7/8/2015
7/9/2015
7/10/2015
7/13/2015
7/15/2015
7/16/2015
7/17/2015
7/19/2015
7/21/2015
7/22/2015
8/3/2015
8/11/2015
Origin Site
Fire Perimeter
Cities
USFS Structure
Major Roads
State
0 0.4 0.8 1.6 Miles
Map Created: 11/18/2015
Map Projection: Albers NAD 83 Washington and Oregon
Newby Lake
Newby Lake
BRITISH COLUMBIA
WASHINGTON
Louden Lake
Smith Lake
Okanogan-Wenatchee National Forest
Pasayten Wilderness
Loomis State Forest
USGS, NGA, NASA, CGIAR, N Robinson, IGN, EAS, NLS, OS, NMA, Geodatastyrelsen, GSA, and the GIS User Community

July 3

The Friday July 3 ICS 209 showed the fire's acreage had increased by 10 acres. Similar notes about Red Flag Warnings were included in this ICS 209.

A conference call was held on this day hosted by British Columbia Fire Management regarding the management of the Newby Lake Fire. Representatives from the Okanogan-Wenatchee National Forest's Fire Management Staff and the Washington State Department of Natural Resource's Northeast Region were on this call.

It was agreed that the U.S. Forest Service would take no action and the Canadians would engage in suppression and monitoring to prevent fire spread that would further threaten United States' lands.

Also on July 3, the U.S. Forest Service completed a FSPro run and a Near Term Fire Behavior run. The FSPro output demonstrated a less than 20 percent probability of the fire spreading to the south. The Near Term Fire Behavior model output showed the potential for fire spread into Long Draw and the next drainage to the east—considering the forecasted wind.

That evening, an email from the British Columbia Wildfire Service provided an update and indication that while resources working the fire had been reassigned, plans were to continue suppression the next day.

This email also indicated no fire movement to the south or east.

July 4

Fire Becomes Active

The next day, July 4, the Tonasket Ranger District assigned three fire personnel to hike into and recon the area south of the fire.

On this day, the fire became active. (The fire also became known as the Newby Lake Fire.)

Notable Successes

No Injuries

No lost-time injuries occurred on this incident.

Coordination Between Air and Ground Resources

Excellent coordination occurred on this fire between air and ground resources to check fire spread and allow fire line construction to progress safely.

Coordination Between DNR and USFS

Communications and coordination between the Washington State Department of Natural Resources and U.S. Forest Service Resource Advisors was effective in meeting overall objectives.

Successful Operational Planning

Operations resources continually evaluated their PACE (Primary, Alternate, Contingency, Emergency) model and were therefore prepared to take advantage of favorable weather conditions which presented on July 10-11.

Successful Cross-Border Coordination

Aircraft and line personnel crossing the Canadian border went remarkably well—validating the wisdom of the Northwest Compact Agreement and British Columbia and Northwest United States Wildfire Response Border Arrangement.

The Incident Management Team was able to establish operations within Canada on short notice and worked with B.C. Forestry and Border Officials, which allowed for smooth international operations.

Throughout the fire, there were successful cross-border flights of cargo, crews, communication equipment, and recon. This was largely due to the agreements and processes already in place by the Okanogan-Wenatchee National Forest, Washington DNR, and other federal agencies, along with their Canadian counterparts.

New Technology

The increased use of new technology (iPad visual displays, Dropbox file sharing, Collector GIS inputs, E I-Suite and visual projections for meetings) proved to help and enhance the overall management of this fire.

Also on this day, July 4, the National Weather Service in Spokane issued a Red Flag Warning for strong northerly winds associated with a dry cold front. At 11:58 a.m., the Canadians sent an update via email advising that the fire was being staffed and indicated no threat of fire spread to the east or south.

Based on the Red Flag Warning and potential safety concerns, the three Tonasket Ranger District personnel discontinued their ground recon and returned to the trailhead at 5 p.m.

The ICS 209 submitted that evening noted: *"Red Flag Warnings for winds and low relative humidity for the next several days. Warm and dry conditions lingering over area well into next week. Cold front and subtle winds peaking overnight. North component winds for the next several days."*

The Newby Lake Fire on July 4.

July 5

Fire Enters United States' Lands

The next day, Sunday July 5, "MODIS" detection indicated possible fire spread to the south and east, outside of the Arnold Peak Basin area. ("MODIS" "Moderate-Resolution Imaging Spectroradiometer" is satellite-detected data.) MODIS also indicated that there was much fire activity in Canada.

At 1 p.m. during a recon flight, the Tonasket District Fire Management Officer confirmed that the fire had escaped the Arnold Peak Basin and was established in upper Long Draw.

Canadians Unable to Staff Fire

At 4:11 p.m., the Canadians sent an email advising that the fire had moved south. Due to other higher priority fire activity they were experiencing, they said that they were unable to staff the Newby Lake Fire.

At this time, the Wildland Fire Decision Support System (WFDSS) decision was completed (not published until 7/6/15 1 p.m. CST). A discussion about incident complexity and management direction occurred with: the Okanogan-Wenatchee National Forest Duty Officer, the acting Tonasket District Ranger, the District Fire Management Officer, and the Washington State Department of Natural Resources' Northeast Highlands District Manager.

U.S. Fire Managers Order a Type 2 IMT

The recommendation was made to order a Type 2 Incident Management Team. Washington Team #2, on standby in Cashmere, Wash., was assigned. They took command of the fire at 6 p.m. the next day.

July 6
Fire is Torching and Spotting – Threatening Loomis State Forest

The first ICS 209 filed by Washington Team #2 the evening of July 6 noted: *"Fire spread by group torching and spotting. Also, lateral spread down Long Draw when wind and slope align."*

The fire had spotted in or near the Loomis State Forest. Concerns for potential revenue losses were noted. Scouting and establishment of primary control lines were a strategic objective. Resources assigned to the fire included: 1 Type 2 Hand Crew, 5 Helicopters, and 45 Overhead—for a total of 173 personnel.

July 7

By the evening of July 7 the fire had covered 1,347 acres. Some progress with direct line construction had been accomplished. Threats to critical lynx habitat in the Loomis State Forest were a major concern. Replacement commercial timber acreage would have to be designated to replace any damaged by the fire to ensure preservation of adequate lynx habitat. Resources assigned now included: 4 Type 2 Hand Crews, 7 Helicopters, 2 Engines, 4 Dozers and 1 Water Tender—for a total of 250 personnel.

July 8
Forecast Calls for Hot, Dry Weather and "Abundant" Lightning

The July 8 ICS 209 reported the fire at 2,510 acres. Active fire behavior—with ¾ mile spotting—was occurring in heavy, downed fuels. The weather forecast called for hot, dry weather (20 degrees above normal) the next day, with a Fire Weather Watch for abundant lightning the day after that.

Active fire suppression actions now included the utilization of old fire lines from the 2006 Tripod Fire area, along with indirect hand line, dozer line construction, and use of helicopter buckets to slow fire spread. Resources included: 4 Type 1 Hand Crews, 4 Type 2 Hand Crews, 11 Helicopters, 2 Engines, 4 Dozers, 3 Water Tenders, and 125 overhead—for a total of 367 personnel.

By the evening of July 10, the fire was at 5,065 acres in the United States. Forecasted weather called for cooler, moister conditions including afternoon showers becoming wetting rain.

Issues, Concerns, and Challenges

International Border Issues – Success Story

Dealing with the issues related to an international border were noted in ICS 209s and the Executive Summaries by both IMTs who managed the Newby Lake Fire. Crossing an international border increases complexity on an incident, adding additional processes and procedures with U.S. Customs and Border Protection and Canada Border Services. The Team Liaison Officer established relationships with the agencies and all worked cooperatively to resolve these challenges. Once the process was established, fire personnel flew back and forth without issue and the Team considered it a success story.

Wilderness Fire Challenges and Concerns

The fire included wilderness "Minimum Impact Suppression Tactics" (MIST) in some areas and full suppression tactics in other areas. Wilderness fire suppression creates a variety of issues and concerns for firefighter safety. In some places, steep ground with limited access and beetle-killed standing and downed fuel made direct fire line construction difficult and unsafe. Establishing adequate EMS staffing and support (including extrication) in large roadless areas creates logistical challenges for an IMT.

Safety Zones

Significant fire behavior and limited early access in Extended Attack reduced the resources' ability to rapidly establish safety zones for short periods. Ground resources made effective use of "the black" (previously burned areas) for safety.

Problems with Communications

Communications were limited due to poor reception associated with steep, dissected terrain. This situation made contact between the Incident Command Post and the fire lines difficult—including during periods of high fire activity. Satellite phones were few and their reception was spotty due to topography.

Resources now included: 6 Type 1 Hand Crews, 4 Type 2 Hand Crews, 5 Helicopters, 12 Engines, 5 Dozers, and 7 Water Tenders—for a total of 544 personnel.

As Washington Team #2 timed out, Pacific Northwest Team #3, a Type 1 Incident Management Team, assumed command of the fire at 6 a.m. on July 13. Reduced fire behavior due to the wet weather allowed the team to focus on direct attack tactics—which proved to be successful. The fire size did not change on subsequent updates and ICS 209s.

On July 21, the fire was renamed the Newby Lake Long Draw Fire and was assigned a Washington State Department of Natural Resources incident number. The fire size did not change on subsequent updates and ICS 209s.The final InciWeb update on August 7 noted that aerial ignition of an interior island of unburned fuel was to be implemented.

Summary

The Newby Lake Fire managers experienced international and interagency decision challenges during its initial few days.

Canadian officials communicated that no response was needed from the United States, but were unable to staff the fire as intended.

A forecasted cold front caused the fire to become active and enter the United States. Once an Incident Management Team was assigned, the incident was managed with well-defined objectives.

Washington Team #2 was pre-positioned which led to a smooth and efficient transition to command. The incident command transitioned to a Type 1 IMT. Weather played a significant role in the mitigation of this wildfire.

Appendix I – Stouts Creek Fire

For Interactive Map: http://arcg.is/1QqMDSY

Stouts Creek Fire

Date of Ignition
July 30, 2015

Cause
Human

Land Ownership at Fire Origin
Private

Responding Initial Attack Resources
7 Crews, 17 Engines, 4 Helicopters

Preparedness Level at Time of Ignition
National: PL 2
Local: PL 2

Acres Burned
26,452 Acres (as of Sept. 23)

Estimated Cost
$38,000,000 (as of Sept. 23)

Land Jurisdictions
Oregon Department of Forestry, Bureau of Land Management, U.S. Forest Service

Resources at Incident Peak
Total Personnel: 1,900
Crews: 66
Engines: 53
Helicopters: 16

Structures Damaged or Destroyed
None

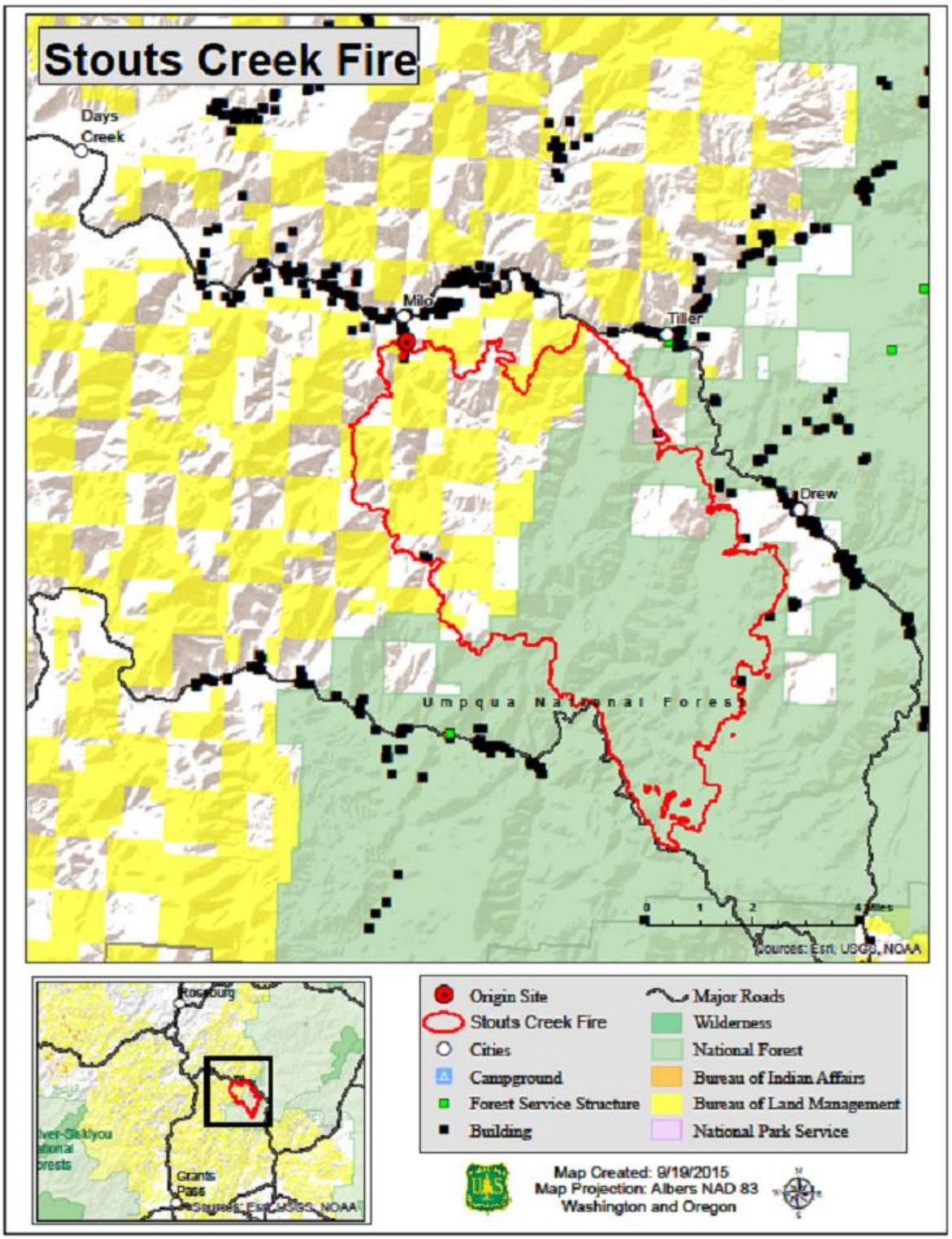
Cooperators
Bureau of Land Management, Oregon Department of Forestry, U.S. Forest Service, Douglas Forest Protective Association, American Red Cross, Days Creek Rural Fire Department, Douglas County Public Works, Oregon National Guard, Douglas County Sheriff's Office, Government of The Northwest Territories, Government of The Yukon, local timber companies, Milo Rural Fire Department, National Weather Service, Office of the State Fire Marshal, Oregon Department of Corrections, Tiller Rural Fire Department.

The Stouts Creek Fire burning on July 30, the day it was first reported. Within its first 12 hours, the fire burned more than 5,000 acres.

On the early afternoon of July 30, 11 miles east of Canyonville near the community of Milo in southern Oregon, an individual using a lawn mower allegedly ignited a fire on private lands protected by the Douglas Forest Protective Association.

Within the first 12 hours, the fire had burned more than 5,000 acres and spread onto Umpqua National Forest lands. Initial Attack efforts were hindered by extreme weather (Haines 6, low humidity, temperatures more than 100 degrees) and fire behavior associated with plume-dominated fires that included crown fire, rapid/intense fire runs, and long-range spotting. Steep terrain and very dry fuels added to this fire's suppression complexity.

Throughout the Stout Creek Fire's early duration, 640 residences and five commercial properties were threatened in the communities of Milo, Tiller, Azalea, Drew and Upper Cow Creek. A total of 120 people were either evacuated or placed into temporary shelters. Other values threatened by the fire included important infrastructure (communication towers, transmission lines) as well as forest and natural resources (U.S. Forest Service buildings and one campground, northern spotted owl habitat and coho salmon habitat).


Stouts Creek Fire
Days Creek
Milo
Tiller
Drew
Umpqua National Forest
0 1 2 4 Miles
Sources: Esri, USGS, NOAA
Roseburg
Grants Pass
Origin Site
Stouts Creek Fire
Cities
Campground
Forest Service Structure
Building
Major Roads
Wilderness
National Forest
Bureau of Indian Affairs
Bureau of Land Management
National Park Service
Map Created: 9/19/2015
Map Projection: Albers NAD 83
Washington and Oregon

When the Stouts Creek Fire ignited, the National and Local Preparedness Levels were both at Level 2. At this same time, 104 active fires were burning across the nation with 10,541 firefighting resources assigned. Within the Stouts Creek Fire's local Geographic Area Coordination Center's domain, 15 fires were active—with three large fires burning uncontained.

Fire Transferred to a Joint Command
With the challenging fire weather and fire behavior quickly resulting in a fire that grew to more than 5,000 acres in size that is threatening structures, the Stouts Creek Fire was quickly transferred from a local Type 3 Incident Management Team to a Joint Command between the Oregon Department of Forestry (ODF) Incident Management Team #1 and the Oregon Office of State Fire Marshal (OSFM) Team. This transfer of command occurred on the fire's second day, July 31.

The Emergency Conflagration Act for this incident had been requested by Douglas County and was invoked by the Governor of Oregon. (This Act enables the Office of the State Fire Marshal to assist and support the Oregon fire service during major emergency operations.) The OSFM Team operated under an agreement from the Oregon State Fire Marshal for structures within rural fire districts and Douglas County for unprotected structures. The ODF Team #1 operated under an agreement from the Forest Supervisor, Umpqua National Forest, along with a Letter of Direction from the Bureau of Land Management District Manager, Roseburg District.

Issues, Concerns, and Challenges

Haines 6 at Fire's Peak

Significant Uphill Fire Runs – Topography and weather events aligned that resulted in fast, intense uphill fire runs that challenged fire suppression efforts.

Steep Terrain

Abundant, Dry Fuel

Structures Threatened – 640 residences and five commercial properties.

Number of Agencies Involved – Multiple land owners/managers and various involved agencies added to this fire's complexity. Good communication and support from the agencies and industry was invaluable.

Resources Reassigned to Other Priority Fires – 16 Hand Crews were reassigned to other fires with greater threats to life and communities by the Pacific Northwest MAC Group on August 16.

Opportunities for the Oregon Department of Forestry to Integrate Incident Management Teams – The Oregon State Fire Marshal Team and a U.S. Forest Service NIMO Team Incident Commander joined with the ODF Team to address all jurisdictional issues.

Initial Attack Actions
The Initial Attack actions on the fire's first afternoon included 7 crews, 17 engines, and 4 helicopters. In addition, local industry equipment was utilized under an equipment group. The plan was to establish anchor points at the fire's heel and begin flanking operations. At the same time, residents were being evacuated and mapping and structure protection with structural task forces and sheriffs were being implemented.

On August 3 the Unified Command was expanded to include the Incident Commander of the Portland National Incident Management Organization (NIMO) Team to address a more significant involvement of federal lands on this incident.

Control lines continued to be built and burn out operations were implemented as needed. Twice, control lines were breached with fire running upslope from below. While these events required additional suppression work and new fire lines, both times these "slop-overs" were successfully contained.

Successful Structure Protection
On August 8, after determining that structure protection benchmarks had been successfully met, the State Fire Marshal's Team was demobilized. Incident management continued with mitigation and various defensible space activities completed. In addition, a structure protection plan was implemented for both the assigned wildland resources and county fire agencies, with two Structure Task Forces available from Douglas County if needed.

Notable Successes

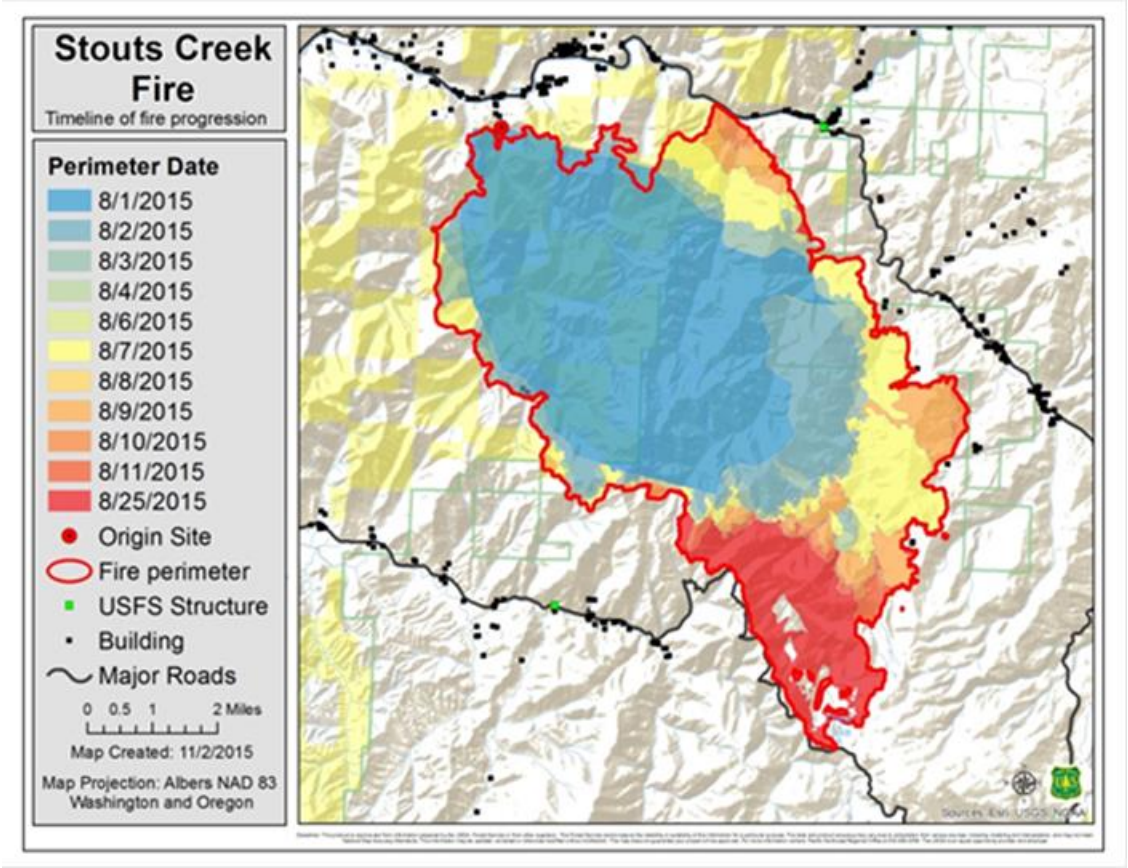
Agency Administrators and Representative Involvement – Agency Administrators made themselves available and provided excellent assistance.

Utilization of Resources Advisors – The use of Resource Advisors (READS) up front on this fire that ensured the early identification and protection of various sensitive resources was key to this incident's success.

On August 10, sole command of the fire was taken by the Oregon Department of Forestry Incident Management Team #1. On August 13, the fire was transferred to a Unified Command of Oregon Department of Forestry Incident Management Team #2 and Incident Commander, U.S. Forest Service.

During this command, a very difficult 3,500-acre burn out operation was conducted. The entire 51 miles of the fire's control lines were strengthened and held. At this time, with three of the four western regional Geographic Area Coordination Centers (GACCs) at Preparedness Level 5, resources were pulled from the Stouts Creek Fire. On August 16, 16 Contract Crews were pulled from the Stouts Creek Fire and reassigned to higher priority fires in the Pacific Northwest. Despite the reduction of more than 300 firefighters, the Incident Management Team adjusted and was successful in completing these difficult firing operations.

On August 24 at 6 p.m., command of the Stouts Creek Fire was transferred to a Florida U.S. Forest Service Type 3 Incident Management Team. Fire lines continued to be secured and mop-up proceeded, resulting in containment on September 23.



Appendix J – National Creek Complex

For Interactive Map: http://arcg.is/1QqMsap

National Creek Complex
(Three Fires: National Fire, Crescent Fire, and Crescent 2 Fire)

Date of Ignition
August 1, 2015

Cause
Lightning

Land Ownership at Fire Origin
Crater Lake National Park, Rogue River-Siskiyou National Forest

Responding Initial Attack Resources:
National Fire – Type 4 Incident Commander, Type 6 Engine, 10 Firefighters

Crescent and Crescent 2 Fires – Type 4 Incident Commander, Type 2 Initial Attack Hand Crew

Preparedness Level at Time of Ignition
National: PL 3
Local: PL 3

Acres Burned
20,960 Acres (as of 9/30/15)

Estimated Cost
$22 million (as of 9/30/15)

Land Jurisdictions
Crater Lake National Park, Rogue River-Siskiyou National Forest, Umpqua National Forest

Resources at Incident Peak
Total Personnel: 1,041
Crews: 17
Engines: 28
Helicopters: 8

Structures Destroyed
0

Cooperators
Crater Lake National Park, Rogue River-Siskiyou National Forest, Umpqua National Forest, Fremont-Winema National Forest, Oregon Department of Transportation, Jackson County Sheriff's Office, Douglas County Sheriff's Office, Douglas County Emergency Services, and Diamond Lake Homeowners Association

Introduction

A lightning storm that passed to the north through southwestern Oregon on August 1 ignited the three fires that would become the National Creek Complex.

The National Fire started on the Rogue River-Siskiyou National Forest. The Crescent and Crescent 2 fires, located approximately one mile east of the National Fire, started in Crater Lake National Park. All three fires were designated full suppression incidents—100 percent containment was the management objective.

The fires also received Initial Attack suppression responses by their respective jurisdictional agencies. The initial Incident Status Summary, ICS 209, on August 4 noted: "*Fires expected to burn together due to limited containment, steep terrain, and continuous fuels.*"

Initial and Extended Attack – August 1-6

National Fire

On August 1, the smoke from the National Fire was seen and reported by personnel on another fire in Crater Lake National Park.

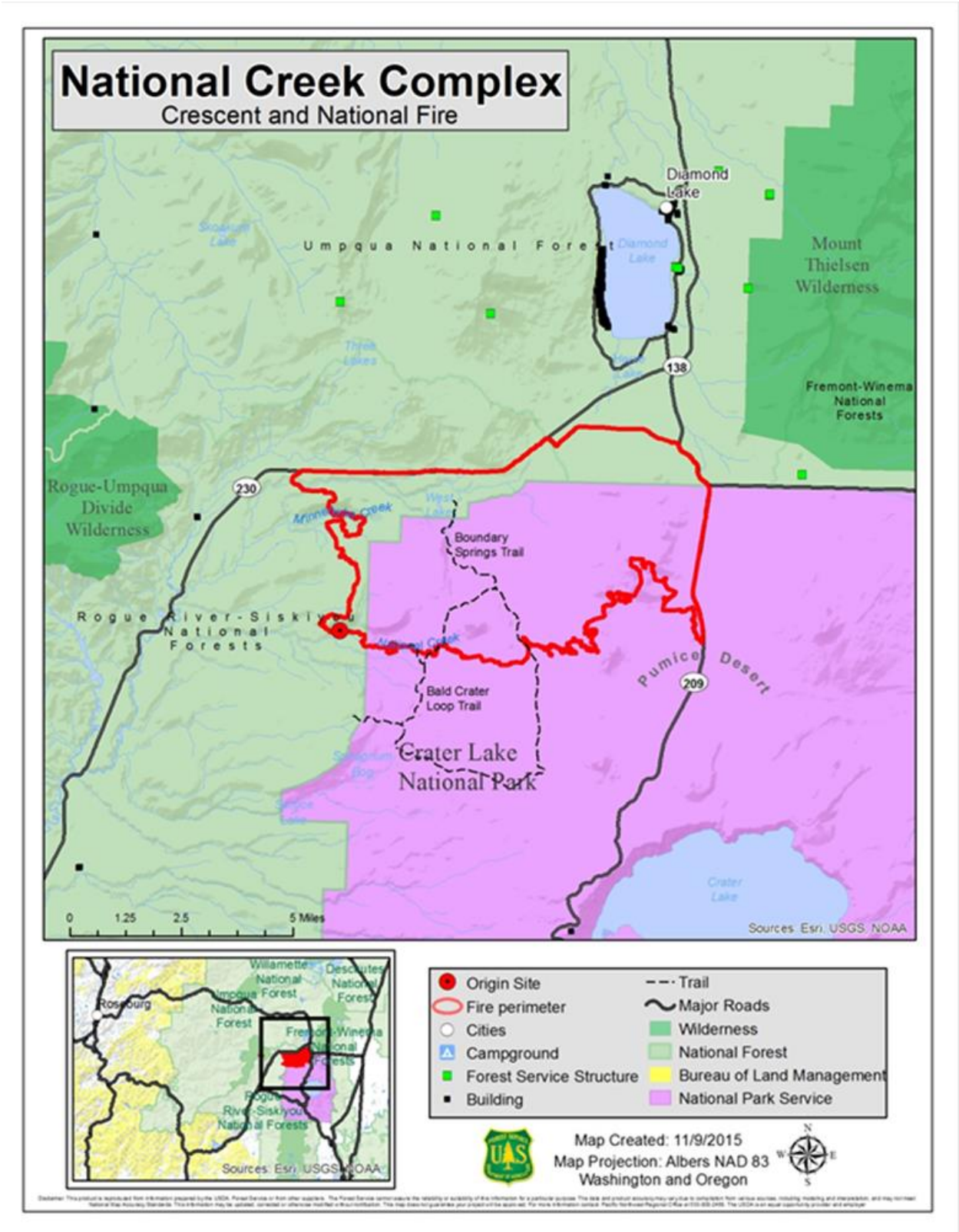
That evening, two overhead and one 10-person Hand Crew responded to the fire's reported location. They were unable to locate the fire. The following day, a Type 4 Incident Commander and a contract Type 6 Engine returned to the area.

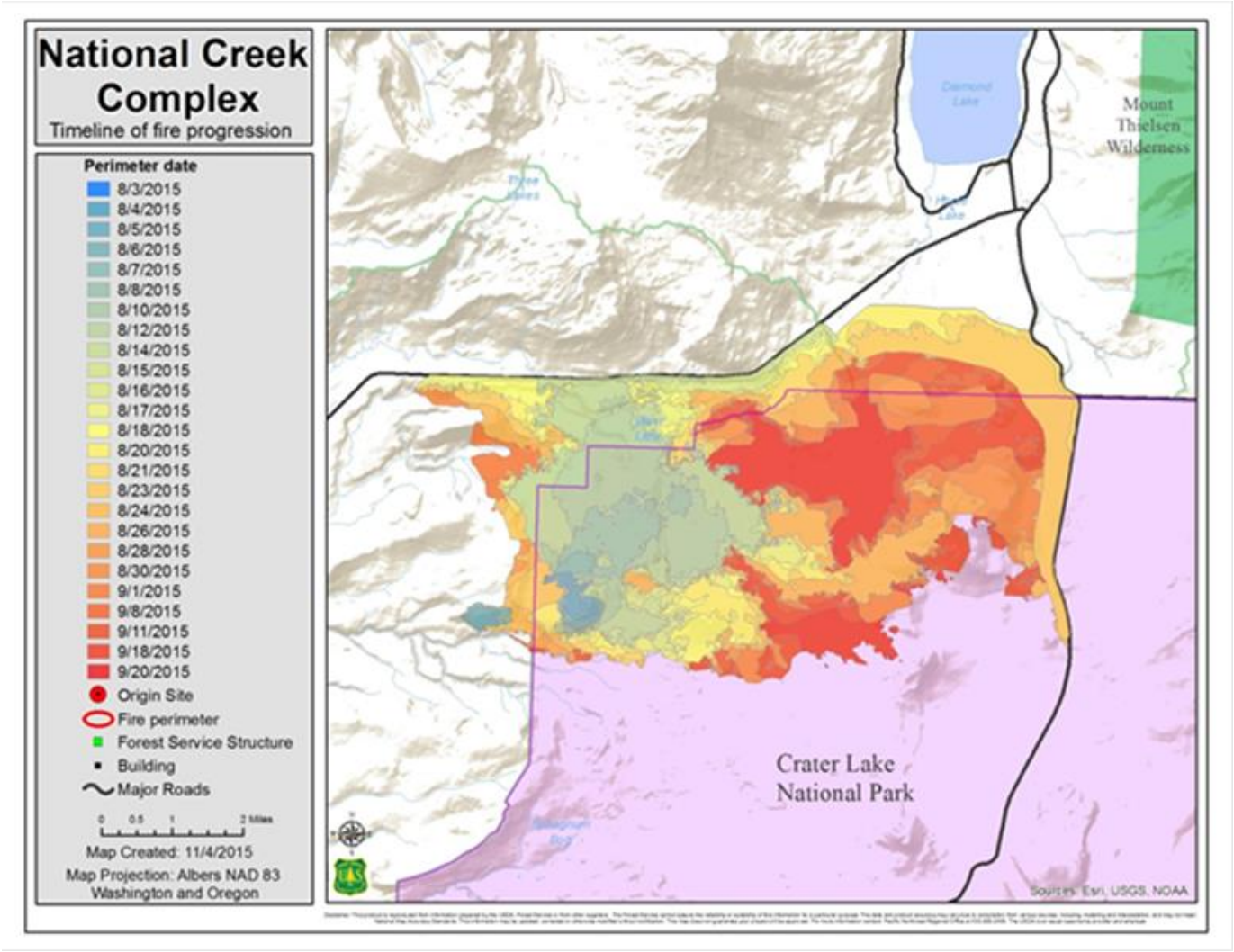
The Incident Commander hiked into the fire from below and observed 12-15 acres with an active perimeter burning. Due to the lack of safety zones, escape routes, and lookout locations in rugged terrain, the Incident Commander did not engage his resources.

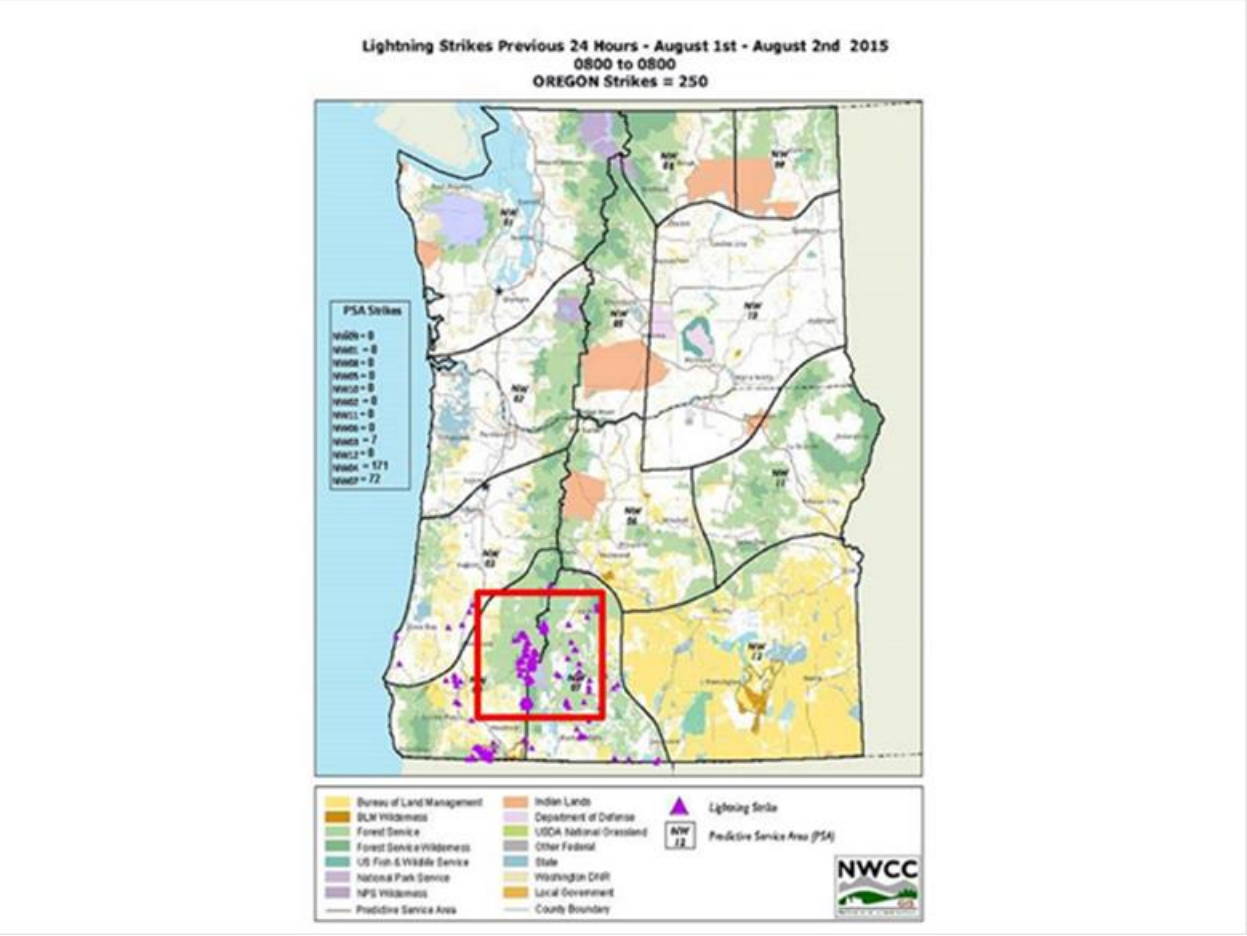
Trees and rocks were rolling off cliffs making it hazardous to work below the fire. The objective, therefore, became to locate and open a road to provide access to the fire.

A request was made to the Medford Interagency Communication Center (MICC) for five crews: 2 Type 1 Crews, 1 Type 2 Initial Attack Crew, and 2 Type 2 Crews. However, resource availability was limited due to the many other lightning fires that were also burning in the area (82 new fires in the Pacific Northwest—60 of them in Oregon) on the first two days of August.

On August 4, the National Fire's third day, a Type 1 Helicopter was used to drop water to help check the fire's growth. On this day, an Interagency Hotshot Crew was inserted into the National Fire and began line construction to contain the fire.


National Creek Complex
Crescent and National Fire
Diamond Lake
Umpqua National Forest
Mount Thielsen Wilderness
Fremont-Winema National Forests
Rogue-Umpqua Divide Wilderness
Rogue River-Siskiyou National Forests
Boundary Springs Trail
Bald Crater Loop Trail
Crater Lake National Park
Pumice Desert
138
230
209
0 1.25 2.5 5 Miles
Sources: Esri, USGS, NOAA
Origin Site
Fire perimeter
Cities
Campground
Forest Service Structure
Building
Trail
Major Roads
Wilderness
National Forest
Bureau of Land Management
National Park Service
Map Created: 11/9/2015
Map Projection: Albers NAD 83
Washington and Oregon


National Creek Complex
Timeline of fire progression
Perimeter date
8/3/2015
8/4/2015
8/5/2015
8/6/2015
8/7/2015
8/8/2015
8/10/2015
8/12/2015
8/14/2015
8/15/2015
8/16/2015
8/17/2015
8/18/2015
8/20/2015
8/21/2015
8/23/2015
8/24/2015
8/26/2015
8/28/2015
8/30/2015
9/1/2015
9/8/2015
9/11/2015
9/18/2015
9/20/2015
Origin Site
Fire perimeter
Forest Service Structure
Building
Major Roads
0 0.5 1 2 Miles
Map Created: 11/4/2015
Map Projection: Albers NAD 83
Washington and Oregon
Mount Thielsen Wilderness
Crater Lake National Park
Sources: Esri, USGS, NOAA



Lightning strikes that occurred from August 1 through August 2 in the vicinity of the Crescent and National fire origins are in shown in the red box.

Crescent Fire

During the August 1 lightning storm, the Crater Lake National Park Fire Management Officer observed nine fire ignitions—including the Crescent and Crescent 2 fires.

A Type 4 Incident Commander and a Type 2 Firefighter hiked into the Crescent fires and completed a partial recon of the incident before dark (see photo on next page).

A Type 2 Initial Attack Hand Crew was requested, but was not available until the next day. Smokejumpers were ordered and were over the fire at 5:31 p.m. They reported that the Crescent Fire was 20 acres and had combined with the adjacent Crescent 2 Fire. Due to fire behavior and size relative to the capacity of six smokejumpers, they did not jump the fire and were reassigned to another fire. Additional resources that were ordered by the end of this shift: 2 Type 2 Initial Attack Crews, 1 Base Camp Manager, 1 Falling Module, and 1 Long Term Analyst. A Helicopter and Crew and Water Tender would be shared with other fires in the Park.

National Fire on August 5. Photo by the Type 4 Incident Commander.

The Crescent Fire on August 1, approximately two hours after ignition.
Photo taken by the Type 4 Incident Commander during his hike into the fire.

August 2

On August 2, the Type 4 Incident Commander returned to the fire. He reported 27 acres of active fire with group tree torching and one-quarter mile spotting in heavy fuels in and adjacent to the fire.

At 1:37 p.m. the fire's command was transferred to a Type 3 Incident Commander, who arrived with the Type 2 Initial Attack Hand Crew. The Hand Crew engaged the fire until dark and remained on the fire overnight.

The Type 3 Incident Commander stated that fire behavior was the most severe he had observed in Crater Lake National Park. All airborne embers were igniting spot fires with lichen/moss embers from torching tree canopies being a specific problem.

August 3

On August 3, during a helicopter recon flight, the Type 3 Incident Commander shoots a short video of the National and Crescent fires (see photo on next page). Early that afternoon, the Crescent Fire was reported as 38 acres, 10 percent lined with the following resources engaged: 1 Type 2 Initial Attack Hand Crew, 1 set of Fallers, and 1 Type 3 Incident Commander Trainee. The last report that day stated the fire was 43 acres and 15 percent contained.

August 4

On August 4, a Type 3 Helicopter was used to make bucket drops to support suppression efforts. By that evening the Crescent Fire was 50 acres and 50 percent lined.

Image from the video taken by the Crescent Fire's Type 3 Incident Commander during the August 3 recon flight.

August 5

At 7:34 p.m. on August 5, it was reported that a 25 percent increase in the fire's size occurred on the fire's south flank.

August 6 – Command of the Two Fires Joined Together

The command of the Crescent Fire and the National Fire was now joined together. Command of the Complex was transferred to the Type 2 Northern Rockies Wildland Fire Incident Management Team, who in-briefed at 9 p.m.

August 6-12

The National Fire, located below the Crescent Fire, was aligned with a drainage that made it a threat to burn into the Crescent Fire. This potential created a concern for firefighter safety and prompted a prioritization for containment of the National Fire. This containment was accomplished on August 9, with the National Fire at approximately 120 acres. Hand line, supplemented by a hose lay, had been successfully implemented on most of the fire's perimeter.

Crescent Fire Behavior Remains Active

Meanwhile, fire behavior remained active on the Crescent Fire. The ICS 209 submitted the evening of August 8 noted: *This afternoon the fire spotted across the completed line on the north side of the Crescent Fire, then made a run to the east/northeast compromising the previously completed line and percent of containment.*

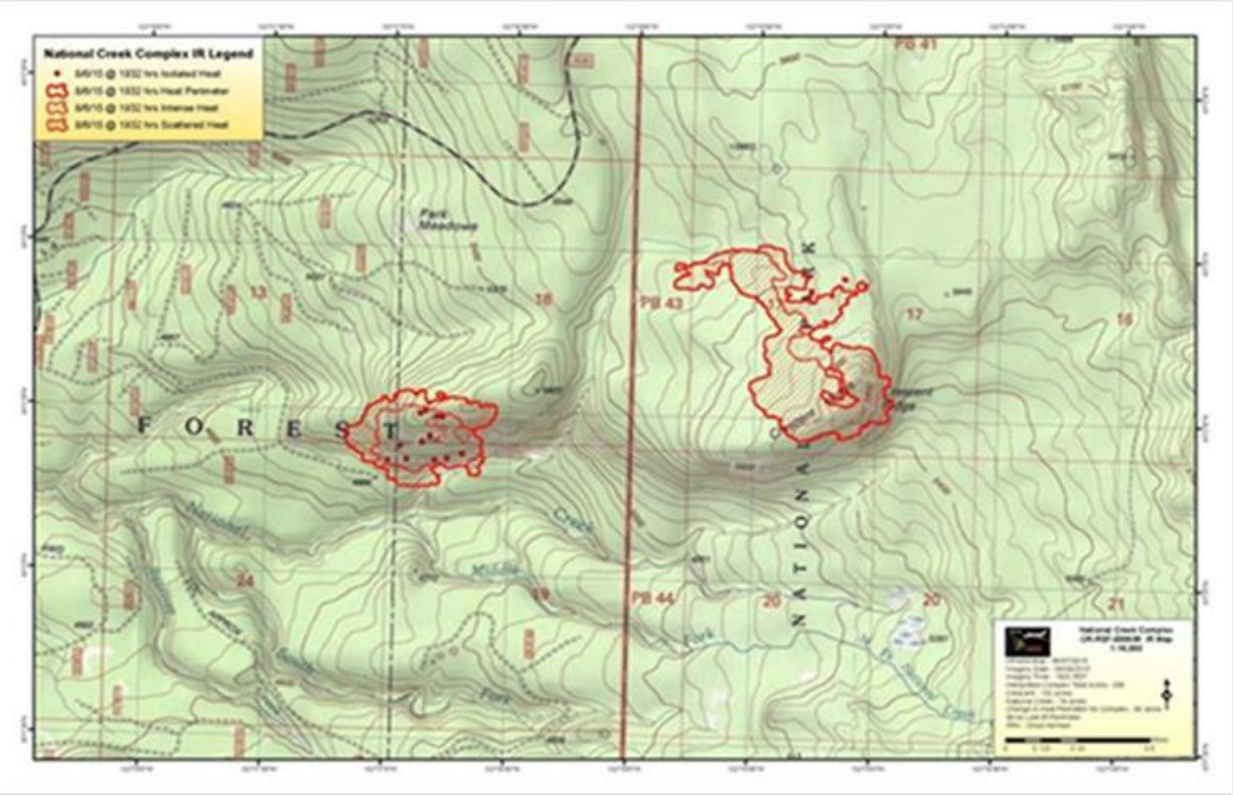
Fire size grew steadily from 145 acres on August 6 to 1,216 acres on August 11. The fire was approaching Highway 230 north of Crater Lake National Park. The Oregon Department of Transportation closed the highway due to smoke.

Extremely dry fuels made prolific spotting a significant factor in fire spread and suppression difficulty. The incident's Fire Behavior Analyst noted a maximum spotting distance of 1.5 miles. Airborne embers of lichen/moss from torching and crowning trees were a significant contributor to this problem. Litter and duff would burn between jackpots of dead and down larger fuels with enough intensity to cause re-burns of scorched canopy. This resulted in pockets of crown fire in the interior of the fire area.

Type 1 Incident Management Team Takes Command

On August 9, with fire behavior remaining active and fire growth continuing, an order was placed for a Type 1 Incident Management Team. By that evening, the National Creek Complex had burned 515 acres. Over the next three days, it would grow another 1,500 acres.

On August 12 at 6:30 a.m., Pacific Northwest Team #3, a Type 1 Incident Management Team, took command of the National Creek Complex. By that evening, the Complex had grown to 2,020 acres.



Infrared perimeter images on August 6 at 7:32 p.m.
The National Fire (on left) is 74 acres.The Crescent Fire (on right) is 132 acres.

The Crescent Fire on August 8.

August 13

Successful Firing Operation

By mid-day on August 13, successful suppression actions were taken on the spot fires that crossed Highway 230. A 2.3-mile burn out operation was completed.

This firing operation was supported in the evening using a swing shift of resources to take advantage of night conditions. The operation made good daily progress, moving along Highway 230 to a constructed dozer line that connected to Highway 138, then south on the Crater Lake National Park north entrance road through the Park to the Pumice Desert. The operation was completed on August 21.

Spot fires across this Park entrance road were aggressively suppressed; the largest one burned one-half acre. These actions put the spread of the fire to the north in check.

Limited Suppression Options Inside Crater Lake National Park

The National Park is managed to protect wilderness values and natural and cultural resources. Minimum Impact Suppression Techniques (MIST) were required. This limited suppression options within the Park boundary. The chosen control route for the north control line was based on the probability of success, coupled with a shortage of needed resources to achieve fire management objectives.

To the north, control lines utilized Highway 230 and dozer lines on the Umpqua National Forest. Lack of resources, specifically Type 1 and Type 2 Initial Attack Crews, hindered direct containment actions on the fire's southern perimeter. Indirect line was prepared using roads, dozer and hand line on the west perimeter in preparation of burning—when conditions allowed.

August 23-September 2

Oregon Team #4, a Type 2 Incident Management Team, received a transition order to the National Creek Complex at noon on August 21.

They shadowed Pacific Northwest Team #3 on August 23 and took command of the Complex at 6 p.m. that evening. At this time, the Complex had burned a total of 10,883 acres. Due to the regional and national demand for resources and the successful mitigation of threats to high values (Diamond Lake Resort Lodge and facilities, private cabins and federal campgrounds) on the National Creek Complex, the Complex was now at a lower priority in the Pacific Northwest Region.

Firing operation conducted by the Pacific Northwest Team #3.

Theater of Operations Approach

In response to the reduced resource allocation priority, a Theater of Operations approach was in place for the southwest Oregon area. The concept was a lend/lease arrangement to utilize adjacent Initial Attack resources for staffing operations on the National Creek Complex. These resources would be released for higher priority missions, specifically Initial Attack. An estimated 75 percent of the resources working on the National Creek Complex were obtained through this lend/lease arrangement.

Moderating weather allowed for the reconsideration and implementation of indirect contingency lines on the National Creek Complex's west flank. Over the next several shifts, a combination of roads, direct/indirect dozer line and hand line allowed burn out operations to secure the west fire perimeter.

During this period, the original National and Crescent fires were connected by fire.

Further discussions between Agency Administrators and the Incident Commander occurred to validate strategies and tactics and priorities for the Complex's south flank. Strategy and tactics shifted to a direct approach, utilizing a combination of natural barriers and Minimum Impact Suppression Tactics (MIST) to secure the fire perimeter from the southwest corner near National Creek to the Bald Crater Loop Trail. Rain and strong winds delayed continued efforts from the Bald Crater Loop Trail to the Boundary Springs Trail.

Another Transfer of Command

Oregon Team #4 managed the National Creek Complex until the morning of September 2 when the South Central Oregon Fire Management Partnership Type 3 Team took command. The Complex now covered 15,458 acres.

September 2-22

On September 2 when the Type 3 IMT took command, The National Creek Complex was still active in all seven divisions, including a significant amount of interior burning. Incident objectives were unchanged.

Indirect fire line options were developed for the Minnehaha Drainage on the northwest corner of the fire. This line was completed and interior perimeters of fire edge were engaged with engines and helicopter drops. The rest of the western perimeter was contained with direct and indirect line from the previous IMT. No additional firing operations were done by the Type 3 IMT.

Suppression Actions Inside Crater Lake National Park
Approximately 95 percent of the fire's southern perimeter was located inside the Park. Minimum Impact Suppression Tactics (MIST) continued to be utilized on these lands. Some discussion and debate occurred between the Agency Administrator and the IMT regarding the degree of suppression action needed.

The Type 3 IMT established "trigger points" for action if the fire became more active.

Southern Flank Becomes Active
On September 9, the southern flank became active. The Type 3 IMT established an Air Operations position and ordered Single Engine Air Tankers (SEATs) to make water drops. The next day, additional resources included a full load of Smokejumpers, Air Attack, six Helicopters, and three SEATs with "fugitive retardant". ("Fugitive retardant" is designed to fade, losing the dye color and, thus, is used in wilderness and sensitive viewsheds). The Smokejumpers were added to a Wildland Fire Module on the southwest perimeter to secure Helispot H-25 and hot spot to the west to tie-in with fire line at the Park boundary.

At 7 a.m. on September 22, the command of the National Creek Complex transferred to a Crater Lake National Park Type 4 Incident Commander.

September 29-October 21
A Type 3 Helicopter and two Wildland Fire Modules remained on the Complex to support suppression activities. On September 29, this staffing was reduced to one Wildland Fire Module to monitor and patrol the fire. This Module remained engaged on the fire through October 4 when the staffing was reduced to local resources.

Interior burning was still occurring when the final ICS 209 was submitted on September 30. This last ICS 209 reported the National Creek Complex at 20,960 acres. The fire was declared contained on October 21.

Notable Successes

Observations by
Initial and Extended Attack Incident Commanders

- Large number of ignitions for limited resources. Most fires were successfully suppressed.
- Containment of National Fire mitigated concerns for firefighter safety on Crescent Fire.
- There were no reportable injuries.
- Good interaction with Park Superintendent. Agency Administrator/Representative interaction was a key to success.
- Swing shift was used effectively for ignition and holding of indirect perimeter lines.
- Dropping back to significant road systems facilitated rapid and effective containment line development.
- Being allowed to construct a dozer line on national forest land between Highways 230 and 138 reduced fire footprint, the risk to Diamond Lake, and provided a fallback should firing operations have failed.
- Air Operations had two notable successes. The first was the outstanding lend/lease cooperation of aviation resources that developed among different administrative units. The second was—at a critical period—the Fremont-Winema National Forest was able to provide a Helicopter and an aerial Plastic Sphere Dispenser machine (aerial firing equipment) and operator. Additionally, an Air Tactical Group Supervisor was available for assignment when needed.
- Incorporated a "Theater of Operations" approach to conducting business where sharing of resources was a common theme.

Observations by
Oregon Team #4, Type 2 Incident Management Team

- Approximately 75 percent of the resources available to work on the Complex's objectives were utilized on a lend/lease basis. Coordination with adjacent agencies in a "Theater of Operations" approach.
- A daily Agency Administrator/Representative face-to-face meeting with the Incident Commander provided a good forum to bring up any emerging issues and to discuss future plans and options.
- Agency representatives for Crater Lake National Park and the High Cascades Ranger District of the Rogue River-Siskiyou National Forest were readily accessible and responsive. Good working relationship with Crater Lake National Park Superintendent.

Observations by
South Central Oregon Fire Management Partnership, Type 3 Incident Management Team

- 100 percent containment of the Complex was an objective from the start. The public had been told all along that was an incident objective—and it was accomplished.
- Use of aerial delivered firefighters—Smokejumpers—was a key tactic to containing the south perimeter. That resource kept an important Helispot from being burned over and lost. Use of two Interagency Hotshot Crews completed the southeast indirect containment.
- Coordination and cooperation with other ongoing fires allowed for the lend/lease of resources. This increased efficiency and made resources available that were not coming from resource orders.

- Use of Single Engine Air Tankers with water and fugitive retardant contributed to containment objectives.
- For future reference, the Broken Arrow Campground at Diamond Lake is a good Incident Command Post facility for incidents in this area.
- Rotation of Incident Management Team personnel through days-off worked well as the Team's assignment exceeded 14 days.

Issues, Concerns and Challenges

Observations by
Initial and Extended Attack Incident Commanders

- Crescent Fire: Had to hold up operations over safety concern of National Fire moving toward Crescent Fire. This contributed to the loss of containment on the Crescent Fire.
- National Fire: Steep, rugged terrain, lack of access and limited resource availability due to numerous new fires delayed containment of this fire.

Observations by other National Creek Complex Incident Commanders

- Difficulty mitigating safety issues, specifically medevac capacity.
- Availability of resources was an issue. Priority work on the fire's north and west sides (threats to structures at Diamond Lake) tied-up available resources, which were mostly via lend/lease.

National Creek Complex Summary

- The National Creek Complex became the largest fire in the recorded history of Crater Lake National Park.
- Record low snowfall accumulation preceded the fire season. Fire Danger Indices were at the 90th percentile levels with associated fire behavior challenges.
- Initially, the two primary fires experienced delays in staffing. The lightning storm of August 1 ignited numerous other fires which placed demands on Initial Attack resources. Other ongoing and emerging incidents in the Pacific Northwest Region were a higher priority.
- The National Creek Complex was managed by a series Incident Commanders and Incident Management Teams over a two-month period.
- Resource Advisors were assigned, present, and engaged.
- Firing operations utilizing two state highways, a dozer line constructed on the Umpqua National Forest to connect the highways and the north entrance road to Crater Lake National Park completed indirect containment of the Complex on the north and east perimeters. Threats to the highest priority values at risk were mitigated by this indirect line construction and firing operation on the north. These values included the Diamond Lake resort and related businesses, Diamond Lake RV Park, private cabins, several federal campgrounds, and other buildings.
- A combination of roads, direct and indirect dozer and hand line with firing secured containment on the west perimeter. The south perimeter was contained in the Park with mostly hand line using MIST tactics. The containment efforts followed the order of priorities set in the incident objectives for the duration of the incident.

Appendix K – Cougar Creek Fire

For Interactive Map:
http://arcg.is/1QqdTRL

Cougar Creek Fire

Date of Ignition
August 10, 2015

Cause
Lightning

Land Ownership at Fire Origin
Yakama Agency

Responding Initial Attack Resources:
1 Crew, 3 Engines, 1 Dozer, 2 Helicopters. Resources were available for extended attack beginning Aug. 12, including: 7 Crews, 11 Engines, 1 Dozer, and 2 Helicopters.

Preparedness Level at Time of Ignition
National: PL 4
Local: PL 4

Acres Burned
53,539 Acres (as of 11/17/15)

Estimated Cost
$23,500,000 (as of 11/17/15)

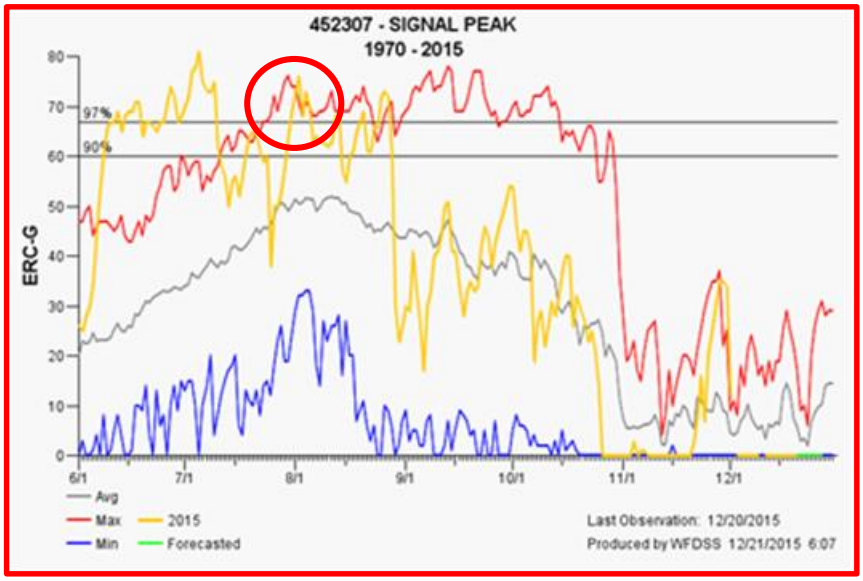
Land Jurisdictions
Yakama Agency

Resources at Incident Peak
Total Personnel: 568
Crews: 14
Engines: 26
Helicopters: 6

Structures Destroyed
0

Cooperators
Bureau of Indian Affairs, Yakama Fire, U.S. Forest Service, Bureau of Land Management, National Park Service, U.S. Fish and Wildlife Service, Washington State Department of Natural Resources

Fire Danger Indices at Historic High Levels When Cougar Creek Fire Ignites



This graph from the Signal Peak Remote Automated Weather Station (RAWS) shows how the Energy Release Component (ERC)—a measurement of fire danger indices—is at near historic high levels when the Cougar Creek Fire ignites.

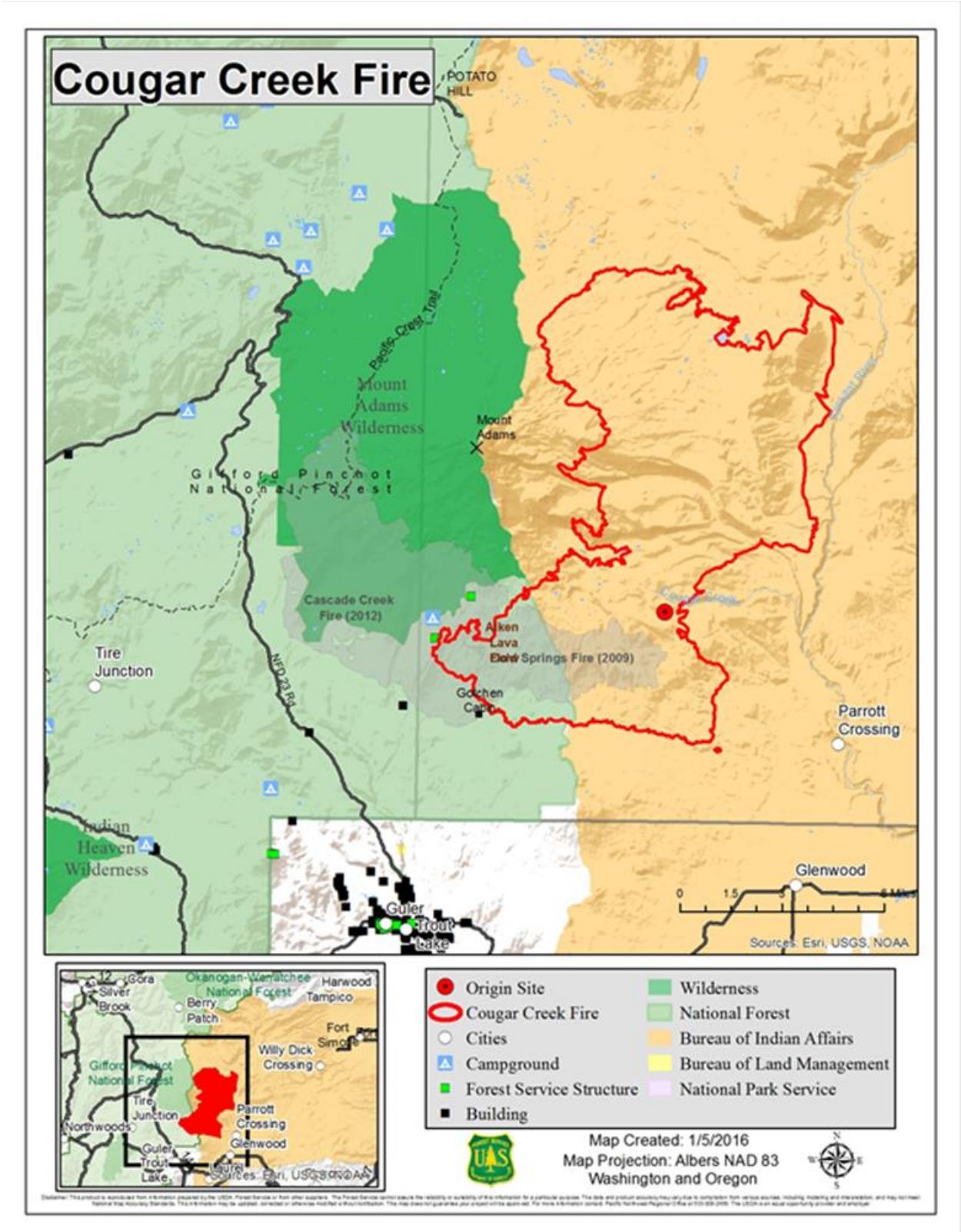
The lightning-caused Cougar Creek Fire is reported shortly after its ignition at 9:20 p.m. on August 10, 2015 on the eastern slopes of Mount Adams near Cougar Creek in Washington.

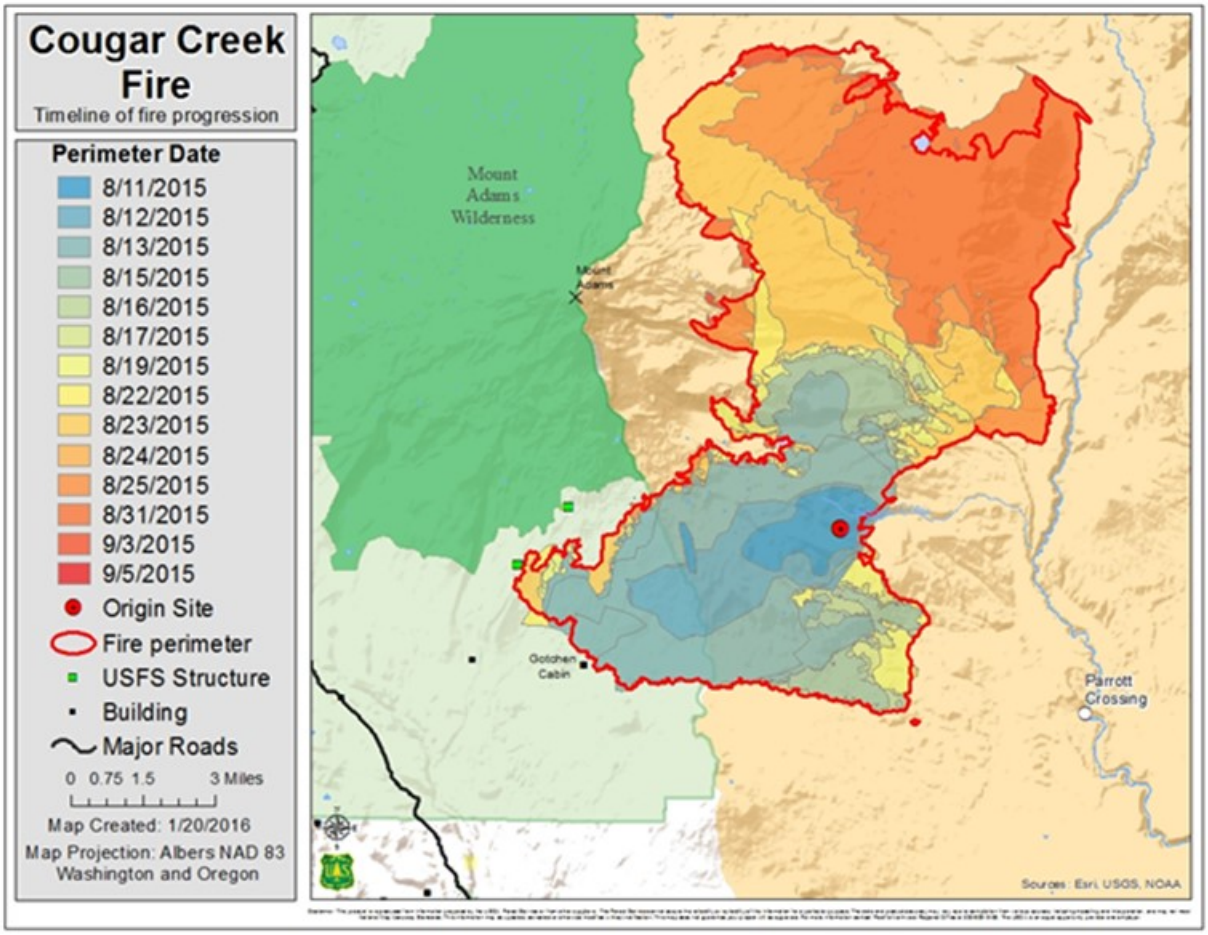
Based on initial reports, it is not certain if the fire is located on Yakama Nation Tribal lands or Washington State Department of Natural Resources lands. Both agencies mobilize personnel and equipment in an attempt to locate and access the fire utilizing a series of unmaintained timber sale roads.

The Energy Release Component (ERC)—a measurement of fire danger indices—at the time of ignition is at or near historic high levels based on the Signal Peak Remote Automated Weather Station (RAWS) which is located 12 miles east of the fire's point of origin. (See graph above.) During the previous week, the daytime temperatures had been in the low to mid 90s at the fire location.

August 11

Initially, Crews Not Able to Engage the Fire
The Cougar Creek Fire is finally accessed the next day at 4 a.m. It is reported by the Initial Attack Crew as being 40 acres in size with long-range spotting and short crown runs occurring.


Cougar Creek Fire
POTATO HILL
Pacific Crest Trail
Mount Adams Wilderness
Mount Adams
Gifford Pinchot National Forest
Cascade Creek Fire (2012)
Aiken Lava
Bird Springs Fire (2009)
Goldchen Camp
Tire Junction
NFD 23 Rd
Parrott Crossing
Indian Heaven Wilderness
Glenwood
Guler
Trout Lake
Sources: Esri, USGS, NOAA
Origin Site
Cougar Creek Fire
Cities
Campground
Forest Service Structure
Building
Wilderness
National Forest
Bureau of Indian Affairs
Bureau of Land Management
National Park Service
Map Created: 1/5/2016
Map Projection: Albers NAD 83
Washington and Oregon
Okanogan-Wenatchee National Forest
Harwood
Tampico
Gora
Silver Brook
Berry Patch
Fort Simcoe
Willy Dick Crossing
Gifford Pinchot National Forest
Tire Junction
Parrott Crossing
Glenwood
Northwoods
Guler
Trout Lake
Laurel



The fire is burning at 6,200 feet in a very dense stand of non-commercial timber. Pockets of lodgepole pine and spruce mortality, along with heavy dead and down, are providing fuel for the fire.

While the Type 2 Hand Crew is able to access the fire location that morning, they are not able to engage the fire as no solid anchor point can be established and fire behavior easily exceeds the threshold of control for an unsupported hand crew.

Type 3 Incident Command Structure Established – Protection of Communities Top Priority
As daylight allows for an improved fire assessment, it is determined that the fire is located exclusively on Yakama Nation Tribal lands. Yakama Fire establishes a Type 3 Incident Command structure for the fire.

Working with their partners on the Gifford Pinchot National Forest and the Washington State Department of Natural Resources (DNR), a full fire suppression strategy—using a combination of direct and indirect attack to minimize fire size—is initiated. The protection of the communities of Glenwood and Trout Lake is established as the highest suppression priority as northerly winds drove the fire toward these communities.

Washington State DNR Ahtanum Hand Crew member during night operations on the Cougar Creek Fire outside of Glenwood, Washington shortly after the fire began. Photo by Amber Arbanas.

Extensive Economic Loss to the Yakama Tribe
Westward expansion of the Cougar Creek Fire is expected to be limited by natural barriers including lava flows, the 2012 Cascade Creek Fire's burned area, and the slopes of Mount Adams.

However, fire expansion to the north and east would threaten and eventually damage commercial timber on Yakama Nation Tribal lands, leading to extensive economic loss for the tribe.

Fire Outpaces Capabilities of Firefighters
On August 11, a Red Flag Warning is issued for the fire area until 11 p.m. for abundant thunderstorms and potentially strong down drafts. Between 5 a.m. and 4 p.m., strong north to northeast winds gusting between 10 to 18 mph are recorded at the nearby Signal Peak RAWS as the fire continues to outpace the capabilities of firefighters.

On August 11, both Large and Very Large Air Tankers as well as a Type I and Type 3 Helicopter are utilized in an attempt to halt fire spread. However, active fire behavior and a dense canopy cover limits the success of these aerial firefighting resources.

Engine resources are assigned to the communities of Glenwood and Trout Lake while a DNR Dozer and a Type 2 Crew attempt to establish fire line on the fire's south flank using a series of existing unmaintained roads.

By late afternoon, the decision is made to order a Type 2 Incident Management Team—requested to take command of the Cougar Creek Fire the next day at 6 a.m.

August 12

Fire Behavior Still Prevents Direct Attack – Suppression Strategy Focuses on Saving the Glenwood and Trout Lake Communities
The Washington Incident Management Team #5 takes command of the fire at 0600 hours.

Direction from the decision published in the Wildland Fire Decision Support System (WFDSS) is to keep the Cougar Creek Fire at the smallest possible size while considering firefighter and public safety and to utilize natural barriers, old fire scars, and existing road systems to assist with fire containment. The Incident Management Team is directed to use direct attack where safe and possible. However, fire continues to threaten local communities and fire behavior continues to exceed the threshold in which a direct attack strategy can be successful.

Firefighters wrap the historic Gotchen Cabin, built in 1909 on the Gifford Pinchot National Forest, to protect this structure from the approaching Cougar Creek Fire. This protective material is special aluminized structure wrap. Photo courtesy U.S. Forest Service.

Therefore, the Incident Management Team focuses on securing the fire's southern perimeter to isolate the communities of Glenwood and Trout Lake, located approximately six miles south of the fire. A Level 1 Evacuation notice ("*Be aware of the situation: BE READY*") is issued for the area north of the community of Glenwood.

West winds and a Haines Index 5 (indicating significant instability in the atmosphere and a high fire growth potential) are encouraging large fire growth. By early afternoon, the Cougar Creek Fire has spotted across the Aiken Lava Bed into the 2012 Cascade Creek Fire area.

An imminent threat exists to the historic Gotchen Cabin, a Gifford Pinchot National Forest guard station that was built in 1909 (see photo above). By the end of the day shift on August 12, the cabin had not been affected by the fire.

Fire Grows to 9,400 Acres with No Containment Date

The Cougar Creek Fire continues to burn westward through grasses and heavy downed fuels, including through large piles of fuels from previous timber harvests and untreated residue from suppression actions on the 2009 Cold Springs Fire. These jackpots of fuel contribute to the ongoing spotting issue.

At the end of this day, August 12, the fire is 9,400 acres with no containment shown on the incident briefing map for the August 13 day shift. Hazardous snag conditions and the lack of appropriate resources, in particular Type 1 and Type 2 Initial Attack crews, preclude the Incident Management Team from staffing a night shift for the duration of their assignment. The evening Incident Status Summary ICS 209 indicates a critical need for one Type 1 Crew and one Air Attack Platform.

August 13 and 14

Fire Grows to 21,800 Acres

By 8 a.m. on August 14, the Cougar Creek Fire has grown to 21,800 acres. While the southern expansion of the fire has slowed, reducing the threat to the local communities, a Level 1 Evacuation remains in place for the structures located north of Glenwood.

Westward fire spread has been stopped by natural barriers including the slopes of Mount Adams, lava flows, and both the 2012 Cascade Creek and 2009 Cold Springs fire's previously burned areas.

However, the fire has started to spread to the north into commercial timber lands of the Yakama Nation.

While the WFDSS management direction speaks to minimizing fire size, the Incident Management Team is unable to engage in direct attack due to intense active fire spread and the lack of appropriate resources.

Cougar Creek Fire activity on August 12. Photo by Jerry Messinger.

Indirect Tactical Approach Leads to Timber Loss on Yakama Tribal Lands
The indirect tactical approach used by the Incident Management Team is focused on improving existing roads and implementing firing operations. This strategy, while appropriate for the resources assigned, leads to the loss of commercial timber on Yakama Tribal lands.

Even though the Cougar Creek Fire is the #4 Priority Fire in Entire Geographic Area – Resources Still Scarce on this Incident
As published in the August 14 National Incident Situation Report, the Pacific Northwest is now the Number #1 priority Geographic Area in the country and the Cougar Creek Fire is the Number #4 priority fire within this Geographic Area.

Yet, even as the Number #4 priority, firefighting resources remain limited due to all of the other activity in the region. On August 14, there were more than 23,000 firefighters assigned to fires with more than 7,100 firefighters on 38 active fires in the Pacific Northwest Region.

The evening ICS 209 for August 14 shows only four Type 1 or Type 2 Initial Attack Crews assigned. However, Dozer staffing has increased to 10 total pieces of equipment. Critical needs listed by the Incident Management Team include two Type 1 Crews and six Heavy Equipment Bosses.

Cougar Creek Fire burning near Mt. Adams on August 12. Photo by Jerry Messinger.

'Consumptive Strategy' Employed to Help Contain Fire Growth

Given the limited firefighting resources and the amount of uncontained fire, the Incident Management Team begins to employ a strategy that limits mop-up on portions of contained fire line and moves the fire suppression resources ahead to the more active portions of the fire.

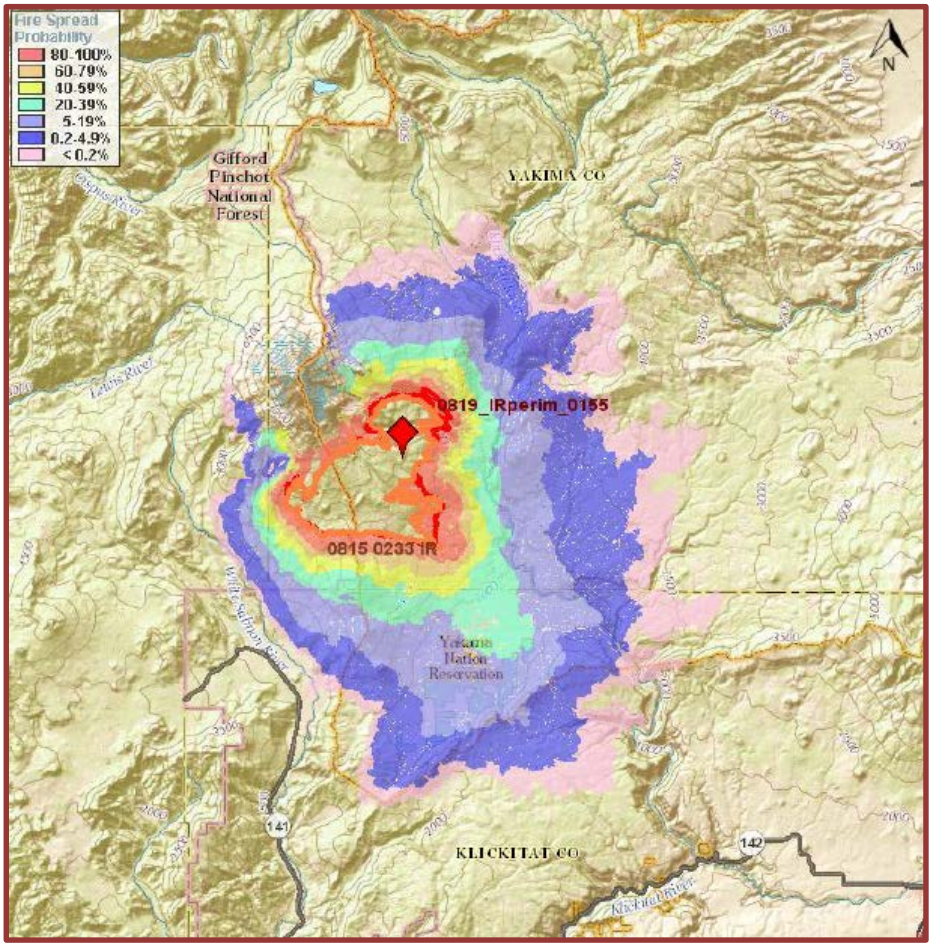
This strategy becomes known locally as a *"consumptive strategy"*—where fuels are allowed to burn out with minimal fire line patrol or mop-up. (This strategy was documented in the August 19 Cougar Creek Fire WFDSS.)

The Incident Management Team is still unable to safely staff a night shift. Often times, it has to delay perimeter containment efforts during the early part of the day shifts to contain spot fires which occurred during the overnight hours.

August 15-19

Fire Activity Slows

Fire activity slows considerably during this time period. Over five days—from August 15-19—the fire grows 1,300 acres. This represents an average daily fire size increase of 260 acres. In addition, resource staffing stabilized during this time period, with the incident fielding an average of 11 Type 1 or Type 2 Crews, 16 Engines, 10 Dozers, and 6 Helicopters.



This image from the August 19 FSPro computer modeling run—that predicts fire spread probability to the south—helped to inform that day's decision published in WFDSS.

Fire Line Successfully Contains Fire on Southern End

The westward and southern spread of the fire has now been stopped using natural barriers and constructed dozer line. The August 19 briefing map shows the fire line successfully contained the Cougar Creek Fire across its entire southern end.

Northern and eastern fire expansion continues as the fire spreads through the major Hellroaring Creek drainage.

Yakama Nation commercial timber lands continue to be impacted on the north and east sides of the fire.

Cougar Creek Fire Drops to Geographic Area's #18 Priority Fire

By August 19, the Cougar Creek Fire has dropped to the #18 priority fire in the Pacific Northwest Region. New incidents, particularly new fires near Lake Chelan and Omak, have been elevated in priority due to threats to communities and actual home destruction.

Crews (Type 1, Type 2 Initial Attack, and Type 2) as well as Engine and mid-level Overhead are listed on the August 19 evening ICS 209 as critical resource needs by the Cougar Creek Fire Incident Management Team.

Computer Modeling Predicts Fire Spread to South

A new WFDSS decision is published on August 19. Management direction remains consistent with previous decisions.

The most recent FSPro simulation (see image above) indicates a reasonable probability for the fire to spread to the south. (FSPro is a computer model program that provides fire spread probability.) Therefore, a series of Management Action Points (MAPs) are established for evacuations along the fire's south side. The WFDSS also establishes four MAPs for "Primary", "Alternative", "Contingency" and "Emergency" fire lines to the north and east of the existing fire perimeter.

August 20-22

Firing operation performed off of an established road on the Cougar Creek Fire on August 25.

Fire is Now 25,000 Acres with 50 Percent Containment

Fire growth continues to be relatively benign. The August 22 briefing map indicates the Cougar Creek Fire is now 25,000 acres with 50 percent containment.

The Incident Management Team has successfully prevented the spread of the fire along its southeast corner by using a combination of direct dozer line and firing operations from improved roads.

Fire line progress on the fire's east flank has now reached Hellroaring Creek. In addition, to the north of the fire, pieces of indirect fire line are indicated on the briefing map. Even though the fire's spread to the south and west has been halted, a Level 1 Evacuation remains in place for the scattered residences located north of Glenwood.

A Red Flag Warning is issued for the fire area for hot, dry, and unstable conditions through August 24.

Engine Crews helped hold the fire lines on the Cougar Creek Fire.

August 23-28

Fire Doubles in Size to 49,200 Acres

From August 23 through August 28, a series of large fire growth days occur under hot and unstable weather conditions.

By August 28, the Cougar Creek Fire has nearly doubled in size to 49,200 acres. The vast majority of this growth occurs on Yakama Nation Tribal lands and has a significant impact on the commercial timber on tribal lands. This loss of sustainable timber production lands will have a significant negative economic impact on the tribe.

While the fire doubled in size during this time period, resource staffing remained static and was unable to address the escalating fire situation.

During this time period, the Cougar Creek Fire never rises above the #13th priority fire for the Geographic Area. Resources remain at levels which cannot meet the management direction of minimizing acres burned.

Cougar Creek Fire Size, Geographic Area Priority Ranking, and Staffing Levels

Date	Fire Size	Geographic Area Priority	Staffing*			
			Crews	Engines	Dozers	Helicopters
8/23	29,000	17	13	26	10	6
8/24	30,400	13	14	27	10	6
8/25	35,000	16	13	26	10	6
8/26	37,900	16	11	27	10	6
8/27	40,200	16	11	26	10	6
8/28	49,200	16	9	26	10	6

[Source: National Incident Situation Report (crews, engines, helicopters), ICS-209 (dozers)]
[Note: All crews listed above were Type 2. Two of the above crews were local Native American crews.]

August 29-30

Precipitation Event Ends Active Burning and Allows for More Direct Fire Line Control Strategy
During August 29-30, a widespread wetting rain occurs over the Cougar Creek Fire area. Rainfall amounts are variable across the fire, with the Signal Peak RAWS on the east side of the fire recording 0.27 inches of rain. At the Buck Creek RAWS, located west of the fire, 0.53 inches are recorded.

This rain event coincides with the planned transfer of command from the Washington Incident Management Team #5 to the Southern California Incident Management Team #3. This new Incident Management Team is in-briefed by the agency administrators on August 29 and has a "shadow day" with the outgoing Washington team on August 30.

While rainfall totals are not significant, the precipitation ends the active burning on the fire and leads to a more direct fire line control strategy which becomes operational when the Southern California Incident Management Team #3 takes command of the fire on August 31.

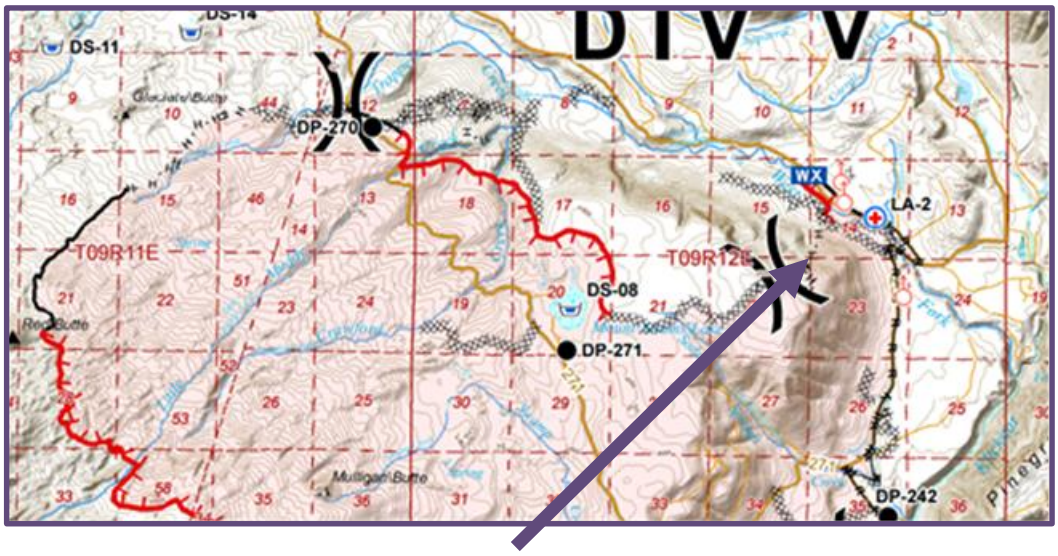
August 31-September 4

Direct Attack Strategy is Implemented
Fire activity is greatly reduced in all areas of the fire. Beginning August 31, a direct attack strategy is implemented to minimize acres burned and to isolate green islands within existing indirect fire lines.

The Cougar Creek Fire is reported at 52,700 acres on August 29 and grows to 53,162 on September 4. (Minor fluctuations in acreages occur during this time period as improved mapping of the incident becomes possible due to the reduced fire activity.)

On September 2, North Cascades Smokejumpers jump to an area on the northeast corner of the fire to complete a section of direct fire line which is beyond the capabilities of the Type 2 Hand Crews assigned to the incident.

This section of fire line (see map on next page) ties into existing direct dozer line to the Potato Hill Road. It allows the Incident Management Team to eliminate the need to burn out from the Potato Hill Road to contain the northern portion of the fire. This operation protects an estimated 2,800 acres of land, some of which contain high-value timber.



Smokejumper constructed hand line is shown from the division break (the two black curved hash marks on right) east to the completed dozer line.

On September 4 more precipitation (0.23 inches at the Signal Peak RAWS) is received on the fire. This weather event effectively closes out tactical operations. Fire line repair becomes the Incident Management Team's primary focus.

September 5-9

Fire line repair continues with a transfer of command back to the home unit on September 9.

Aerial Fire Suppression Activities August 12 through September 8*

- Retardant delivered to the fire line – 88,410 gallons
- Helicopter delivered water in support of fire suppression – 1,109,335 gallons

**Source: Fire Narrative from the Southern California Incident Management Team #3*

Appendix L – Kettle Complex

For Interactive Map: http://arcg.is/1NlyQ00

Kettle Complex

Date of Ignition
Aug. 17, 2015 – Four fires placed into a Complex

Land Ownership at Fire Origins
Washington State Department of Natural Resources, Colville National Forest

Responding Initial Attack Resources
Roy Fire: 1 20-person Hand Crew, 1 Helicopter w/crew, 1 Dozer; **Stickpin Fire**: 2 Helicopters; **Renner Fire**: 2 Hand Crews, 1 Helicopter; **Graves Mountain Fire**: 1 15-person Hand Crew

Preparedness Level at Time of Ignition
National: PL 5
Local: PL 5
(For Stickpin Fire these were both PL 4)

Acres Burned
76,512 Acres (as of 9/26/15)

Estimated Cost
$37,557,000 (as of 9/26/15)

Resources at Incident Peak
Total Personnel: 1,122
Crews: 24
Engines: 66
Helicopters: 5

Structures Destroyed
1 Outbuilding

Cooperators
Washington State Department of Natural Resources, Colville National Forest, Ferry County Fire Districts 13 & 14, Joint Ferry-Stevens Fire District 3 & 8, Ferry County Sheriff, City of Republic, Washington State Patrol, Washington State Fire Marshal, U.S. Border Patrol, British Columbia Wildfire Service

Key Successes on the Kettle Complex

Excellent interagency/international cooperation was illustrated on managing the Kettle Complex fires.

Incident Commanders understood the urgency and magnitude of the fire situation that confronted them.

Their subsequent sharing of resources—to help prioritize suppression efforts and response—was another key to successful outcomes on the Kettle Complex.

Lightning Storm Ignites 16 New Fires

The lightning storm that passed through the greater Kettle Falls, Washington area in the early morning hours of August 11 starts 16 new fires.

Top Photo: The Stickpin Fire burning on August 13. Bottom Photo: The Stickpin Fire moving across the landscape on August 15.

The Stickpin Fire

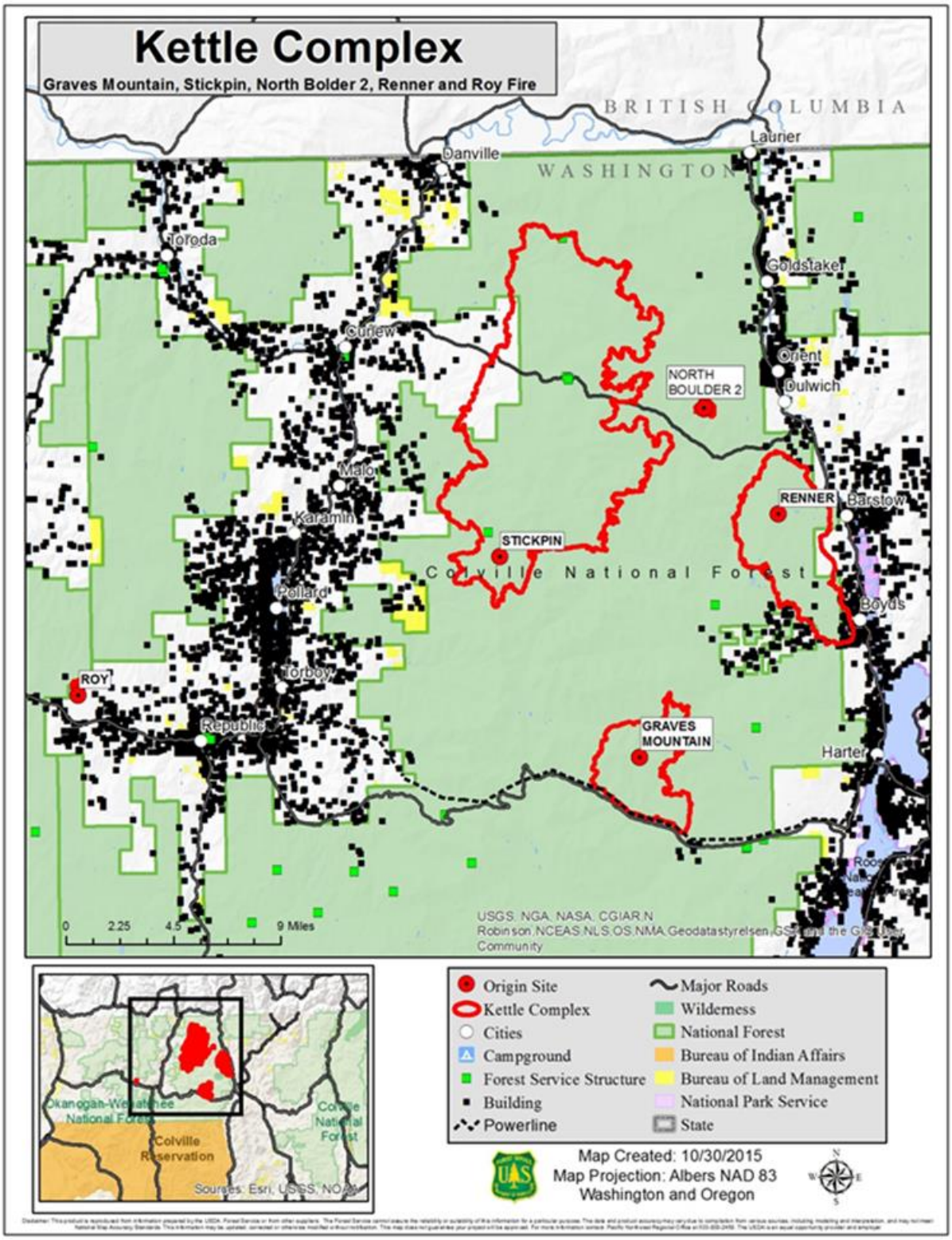
For Interactive Map: http://arcg.is/1Tov6vx

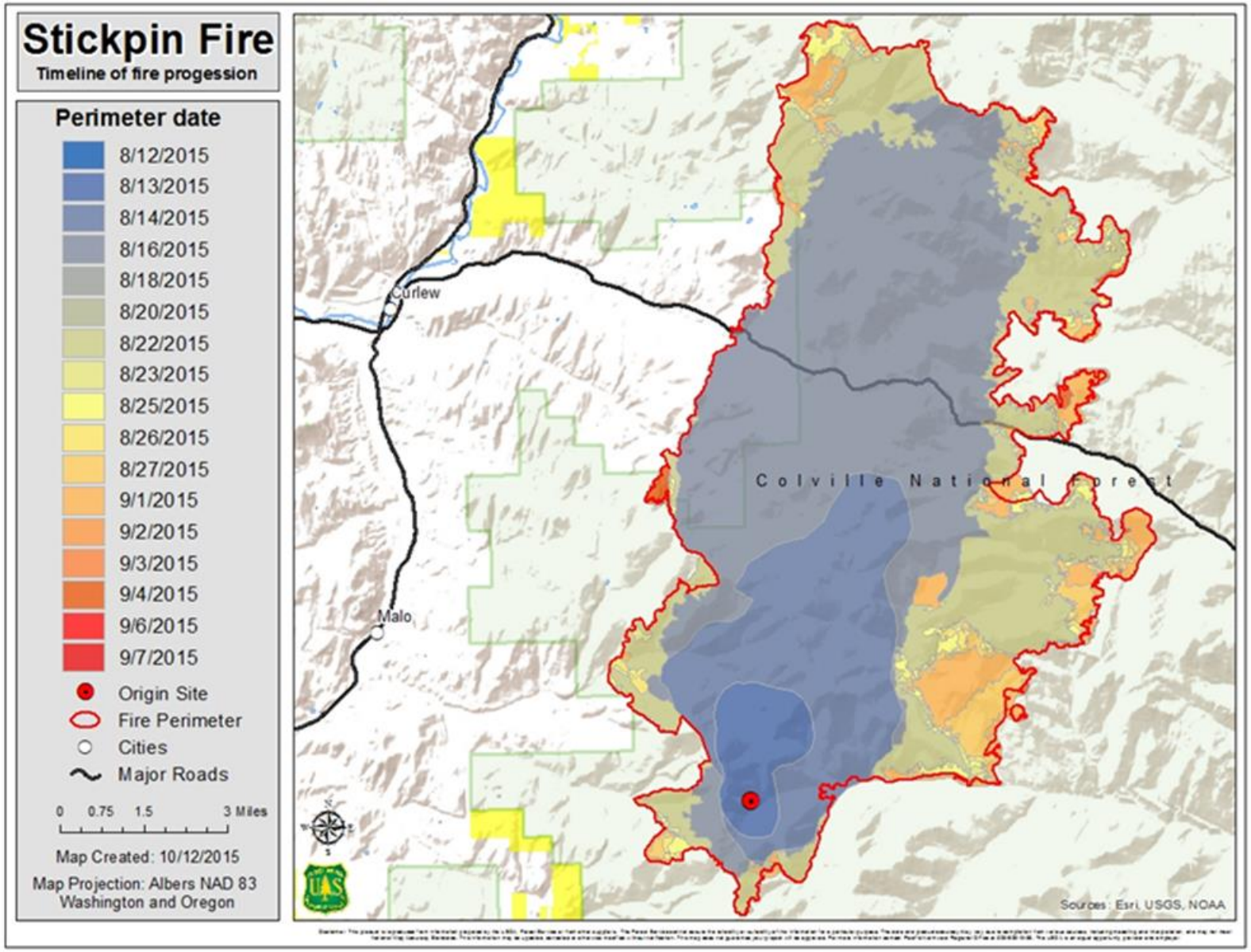
The Stickpin Fire, discovered in mid-afternoon on the Colville National Forest, started in an Inventoried Roadless Area on lands suitable for inclusion in the National Wilderness Preservation System.

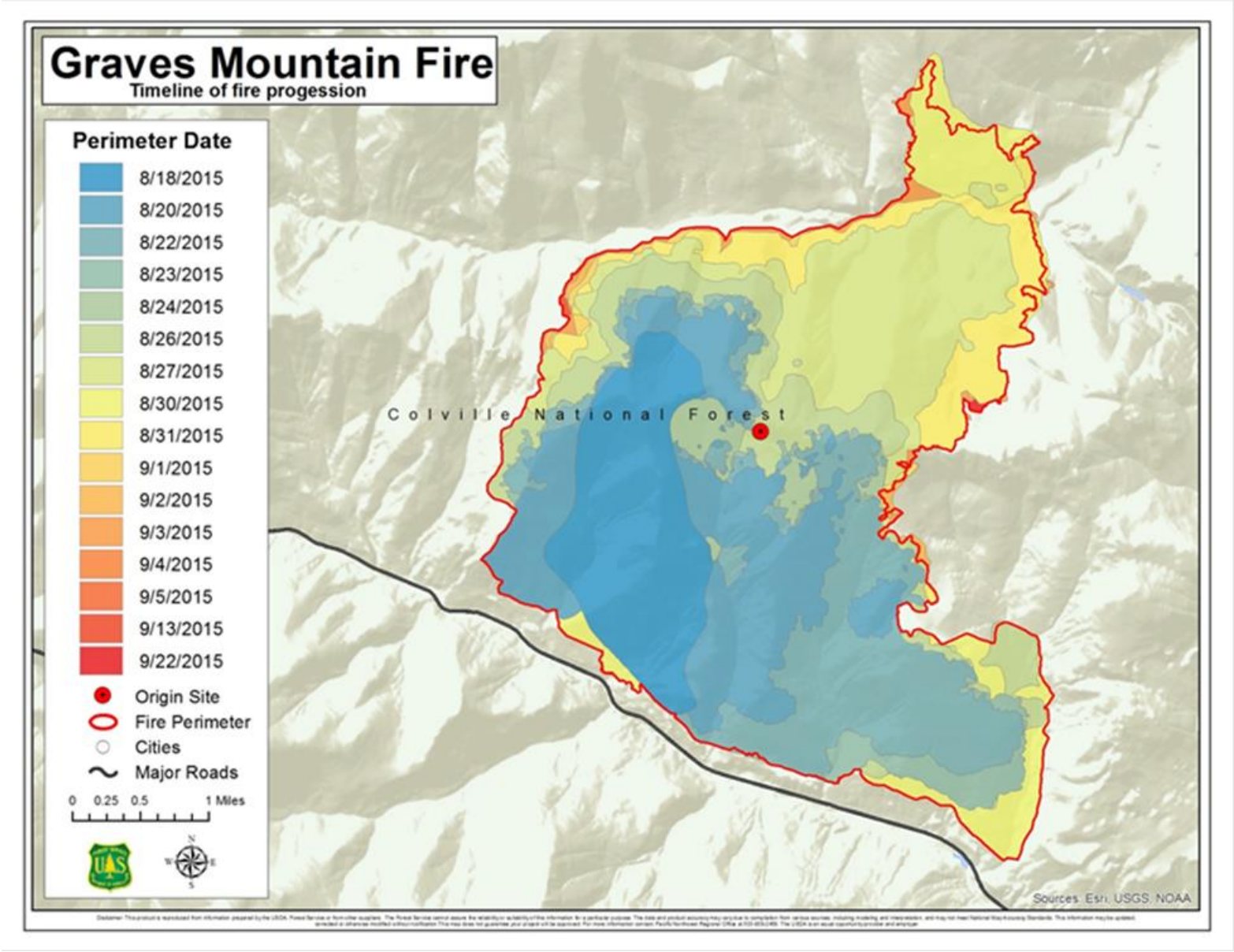
Aerial reconnaissance stated that there were no good aerial firefighter delivery opportunities, no safety zones, and firefighters would be dependent on aerial support for safety.

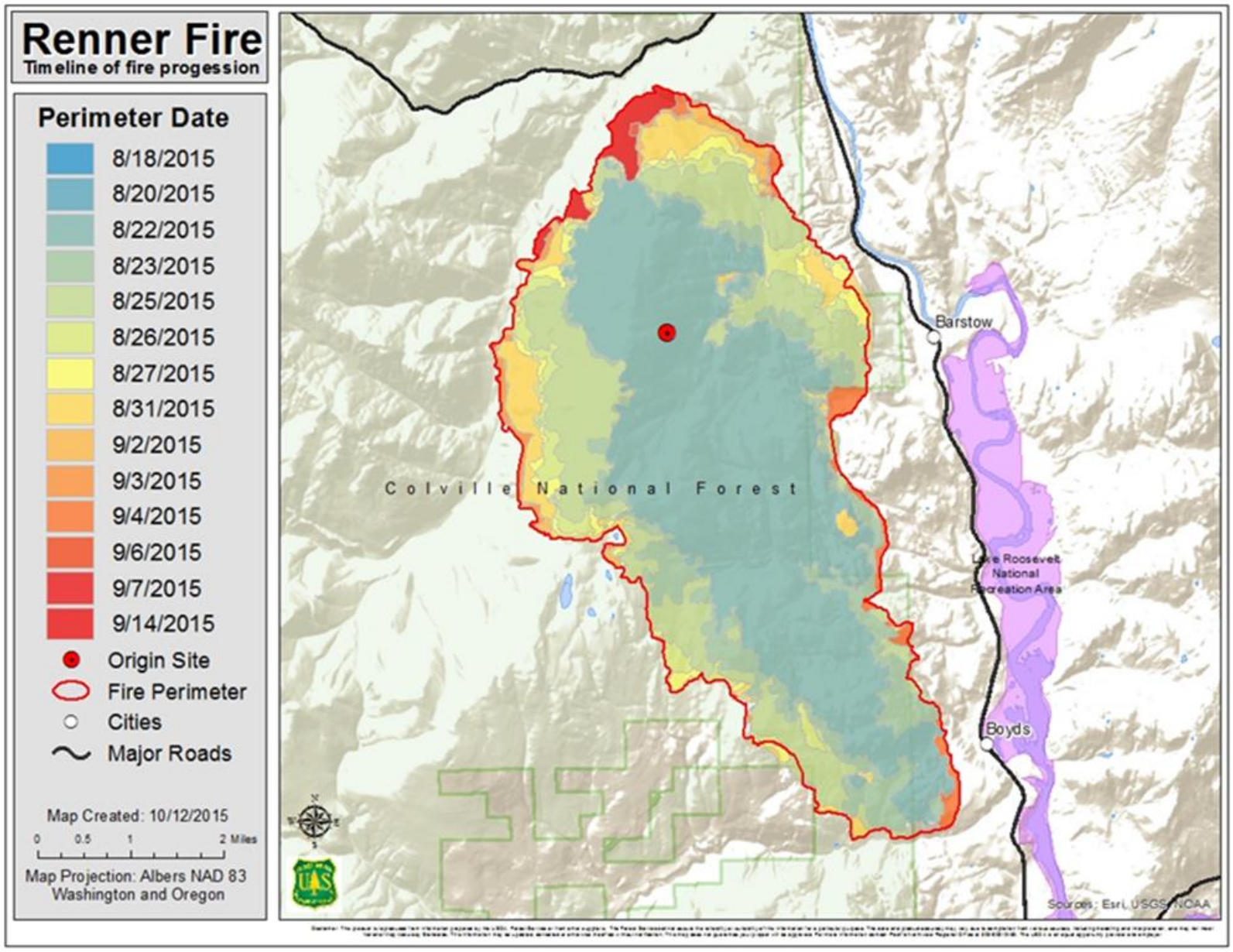
The local and National Preparedness Level is 5, meaning Geographic Areas are experiencing major incidents which have the potential to exhaust all agency fire resources. The only crew immediately available was a Job Corps Crew composed of mostly relatively inexperienced firefighters. Therefore, the decision was made to not insert ground resources at this time. Helicopters were ordered for dropping water to hold the fire in check.

On August 11 and 12, helicopters were the primary Initial Attack resource while the District considered placing its pre-positioned out-of-Region Type 3 Organization from New Mexico on this incident. The fire was 30 to 50 acres at this point with a high Haines Index, indicating significant instability in the atmosphere and a high fire growth potential. An out-of-area Incident Commander was assigned to the fire while the New Mexico Type 3


Kettle Complex
Graves Mountain, Stickpin, North Bolder 2, Renner and Roy Fire
BRITISH COLUMBIA
WASHINGTON
Danville
Laurier
Ioroda
Goldstake
Curlew
Orient
Oulwich
NORTH BOULDER 2
Malo
Karamin
RENNER
Barstow
STICKPIN
Colville National Forest
Pollard
Boyds
ROY
Torboy
Republic
GRAVES MOUNTAIN
Harter
0 2.25 4.5 9 Miles
USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, GS, and the GIS User Community
Origin Site
Kettle Complex
Cities
Campground
Forest Service Structure
Building
Powerline
Major Roads
Wilderness
National Forest
Bureau of Indian Affairs
Bureau of Land Management
National Park Service
State
Okanogan-Wenatchee National Forest
Colville Reservation
Colville National Forest
Sources: Esri, USGS, NOAA
Map Created: 10/30/2015
Map Projection: Albers NAD 83
Washington and Oregon


Stickpin Fire
Timeline of fire progession
Perimeter date
8/12/2015
8/13/2015
8/14/2015
8/16/2015
8/18/2015
8/20/2015
8/22/2015
8/23/2015
8/25/2015
8/26/2015
8/27/2015
9/1/2015
9/2/2015
9/3/2015
9/4/2015
9/6/2015
9/7/2015
Origin Site
Fire Perimeter
Cities
Major Roads
0 0.75 1.5 3 Miles
Map Created: 10/12/2015
Map Projection: Albers NAD 83
Washington and Oregon
Curlew
Malo
Colville National Forest
Sources: Esri, USGS, NOAA


Graves Mountain Fire
Timeline of fire progession
Perimeter Date
8/18/2015
8/20/2015
8/22/2015
8/23/2015
8/24/2015
8/26/2015
8/27/2015
8/30/2015
8/31/2015
9/1/2015
9/2/2015
9/3/2015
9/4/2015
9/5/2015
9/13/2015
9/22/2015
Origin Site
Fire Perimeter
Cities
Major Roads
0 0.25 0.5 1 Miles
Colville National Forest
Sources: Esri, USGS, NOAA


Renner Fire
Timeline of fire progession
Perimeter Date
8/18/2015
8/20/2015
8/22/2015
8/23/2015
8/25/2015
8/26/2015
8/27/2015
8/31/2015
9/2/2015
9/3/2015
9/4/2015
9/6/2015
9/7/2015
9/14/2015
Origin Site
Fire Perimeter
Cities
Major Roads
Map Created: 10/12/2015
0 0.5 1 2 Miles
Map Projection: Albers NAD 83
Washington and Oregon
Colville National Forest
Barstow
Boyds
Lake Roosevelt National Recreation Area
Sources: Esri, USGS, NOAA

organization was demobilizing off another fire on the east side of the Forest and preparing for reassignment to this incident.

In the early morning hours of August 13, the fire is reported to be 200 acres. Two heavy Helicopters work the fire during the day. By 9 p.m., aerial reconnaissance had sized-up the fire at 3,500 acres. There were no resources on the ground at this time.

The potential for the Stickpin Fire to continue this rapid spread prompts the Colville National Forest to order an Incident Management Team (IMT) for this incident. Washington IMT #1, a Type 2 Team, is assigned. By the time they take command at 6 p.m. the next day, the Stickpin Fire is more than 35,000 acres in size.

August 14 photo on the Stickpin Fire shows a fire-whirl, an indicator of extreme fire conditions. Photo by John Foster-Fanning.

Graves Mountain Fire

Another dry lightning event occurred between 11 p.m. to midnight on August 13. At 9 a.m. the following morning, the Graves Mountain Fire is reported. Initial aerial response included the possibility of Initial Attack with Rappellers. However, due to poor visibility caused by the smoke from the nearby Stickpin Fire, this was cancelled. Eventually, the Graves Mountain Fire could not even be seen due to heavy smoke.

Severe to Extreme Drought

During the 2014/2015 winter, northern portions of the Colville National Forest recorded approximately half the total normal precipitation. Because of warm winter temperatures, snow amounts were well below average, amounting to only one-half of a normal winter season snow. These warm and dry conditions continued into mid-summer. June and July experienced temperatures 10-20 degrees above normal. These high readings led to numerous new records, which in some cases were not only broken, but shattered. By mid-August, the U.S. Drought Monitor showed this region in the midst of "Severe" to "Extreme" drought.

Renner Fire

On August 14, another new fire near Renner Lake is also detected. Initially reported at 0.25 acres, within two hours, this fire had grown to five acres and was "quite a ways up the slope".

A Type 1 heavy Helicopter was requested to support the fire. A Hand Crew arrives on scene. At approximately 2:30 p.m. its Crew Leader becomes this fire's Incident Commander. There is a sense that this "fire can be managed" using indirect tactics. A request is made for a Dozer to assist operations.

By 11 p.m., with the fire at approximately 20 acres, the resources pull out due to work/rest considerations. There are no resources to replace the existing resources. It is a low-priority fire due to its remote location. The following day, all resources are diverted to the nearby Carpenter Road, Marble Valley and Gold Hill fires to support the threats to life and property on these incidents.

At 9 p.m. on August 13, the Stickpin Fire is 3,500 acres.

By 6 p.m. the next day, it is more than 35,000 acres.

Local fire managers continued to have resources monitor the Renner Fire daily to help determine its priority. The fire was spreading away from critical values the first few days. It was assigned to the Kettle Complex on August 17.

The Few Scattered Available Resources Would Need to Focus on Life and Property

By the morning of August 15, it is apparent that the overall fire situation in the greater Colville, Washington area is rapidly deteriorating. Extreme fire behavior throughout the West has depleted firefighting resources. The local agencies convene in Colville to triage the existing fires. To the south, the Marble Valley, Gold Hill and Carpenter Road fires were all experiencing evacuations and the loss of structures. The few scattered available resources would need to focus on life and property. The Graves Mountain and Renner fires would have to wait their turn.

The north end of the Stickpin Fire on August 16.

Graves Mountain Fire Knocks Out BPA Power

Late on the morning of August 15, a call from the Ferry County Sheriff's Office informs the Kettle Falls Ranger District's Fire Management Officer that the Graves Mountain Fire had burned under Bonneville Power Authority (BPA) power transmission lines—cutting off all power to the Republic community.

Due to smoke, the Graves Mountain Fire has not been visible. The one Engine available to be dispatched was sent to size-up the situation.

Washington Incident Management Team #1, assigned to the nearby Stickpin Fire, is requested to make resources available to assist.

As there was still not a good fire size-up due to lack of visibility, the focus on the threat to the BPA power transmission line was hot-spotting and suppressing the fires in and around the BPA right-of-way as needed.

Washington Team #1 continues to support the local District by sending resources to assist on the Graves Mountain Fire before it is formally assigned to this team on August 17.

The Roy Fire

On August 14-15, the Roy Fire was successfully Initial Attacked by the Washington State Department of Natural Resources. Available resources—coupled with aggressive initial actions and precipitation—supported this successful outcome.

The Washington State Department of Natural Resources had gone into a Unified Command with the local Volunteer Fire Department. This command had the following resources: one 20-person Hand Crew, two Dozers, one Helicopter and Helitack Crew, and support from the Volunteer Fire Department.

By 6 p.m. on August 15, the 120-acre Roy Fire was 100 percent lined. Rain had helped to hold the fire.

On August 15 the Northeast Area of the Washington State Department of Natural Resources and the Colville National Forest ordered an Area Command Team to manage several of the large fires and complexes and their respective incident management teams. Area Command Teams are national interagency teams that work for agency administrators to prioritize scarce resources and resolve any conflicts between agency missions and objectives for wildfire management.

On the morning of August 17, command of the Roy Fire was given to the Washington Team #1 Incident Management Team to monitor, mop-up, and perform suppression repair work.

The Kettle Complex

On the morning of August 17, the Stickpin, Graves Mountain, Renner, and Roy fires were grouped under one command as the Kettle Complex.

Initially, the Kettle Complex experienced many days of extreme fire growth. Fire managers were confronted with extreme fire behavior and fire weather, as well as determining that delicate balance of what resources to send—where and when.

Lack of Available Resources on the Stickpin Fire
The Stickpin Fire was the primary focus the first two days of Washington Team #1's command.

All the other fires in their area—and throughout the Region—prevented them from getting the resources they had requested. Additionally, with the threat to the BPA power transmission lines on the Graves Mountain Fire—coupled with the loss of power—they were requested to also supply resources to that incident.

Washington Team #1 had only four Crews, two Engines, one Dozer and Air Support when they took command. Lack of available resources and extremely dry conditions led to the fire moving upslope, where it was influenced by ridgetop winds coupled with a Haines Index of 5. These fire behavior elements resulted in a plume-dominated fire with significant spotting, torching, and crown runs.

Community meeting held by the Washington Team #1 Incident Management Team on August 26 in Orient.

There was a significant effort to keep the Stickpin Fire from crossing the border into Canada. Resources from Canada were working the north end of this fire. These Canadian resources were part of the overall Kettle Complex under the Unified Command with the British Columbia Wildfire Service. The fire never crossed into Canada.

By August 21, the three fires in the Kettle Complex had approximately 100 miles of fire perimeter surrounding more than 48, 000 acres with 18 Crews, 41 Engines and 2 Helicopters. The Complex was listed as the 8th highest priority for fires within the State of Washington and 10th overall in the Pacific Northwest Region. Fire managers were confronted with extreme fire behavior and fire weather, as well as determining where to prioritize assignments of their few firefighting resources based on fire spread and proximity to values at risk (life and communities).

On August 27, when the Incident Management Teams transitioned, the Stickpin Fire was more than 48,000 acres—representing more than 90 percent of the fire's ultimate growth. There were a total of five Wildland Fire Decision Support System (WFDSS) decisions published for the Stickpin Fire.

The Stickpin Fire accounted for more than 70 percent of the Kettle Complex's total acres burned.

Graves Mountain Fire Threatens 100 Structures and BPA Lines
The Graves Mountain Fire was approximately 1,300 acres when assigned to Washington Incident Management Team #1. The team's primary focus was the threat to approximately 100 structures as well as the BPA power lines that serviced Ferry County.

Red Flag Warnings and various threats—coupled with the Stickpin Fire size being in excess of 41,000 acres—encouraged the decision to reconsider the management of the Graves Mountain Fire.

The rapidly growing Stickpin Fire—with its limited resources and extreme fire behavior—was challenging Washington Team #1.

On August 24, Area Command assigned the Graves Mountain Fire to the Oregon Incident Management Team #2, a Type 2 Team. This team also had command responsibility for the Colville Complex which included the Marble Valley and Gold Hill incidents, both Washington State Department of Natural Resources fires.

Management of the Graves Mountain Fire was returned to the Kettle Complex on August 31.

Roy Fire Becomes Part of Kettle Complex, Freeing-Up Initial Attack Resources
On August 17, management of the Roy Fire, which started on Washington State Department of Natural Resource protected lands, was given to the Kettle Complex for monitoring, mop-up and fire suppression repair work.

This enabled the Washington State Department of Natural Resources' Initial Attack resources to finally rest and prepare for any future events that might occur. Conditions were still conducive for new fire starts to quickly become large fires**.**

Renner Fire Threatens Homes, but None Lost on this Fire
The Renner Fire started on National Forest System lands approximately one mile and a half from the nearest private land boundary. By the end of this fire's second day, the local Volunteer Fire District (Joint Fire District 3 & 8 with Stevens and Ferry Counties) considered the fire a threat.

This "threat" was not necessarily based on fire behavior or fire spread toward private land, but on the fact that they didn't have any firefighters on the ground to staff the Renner Fire.

While the Renner Fire's initial spread was not threatening homes, by August 17 it became a more imminent threat to nearby communities. Even though it took several days to receive a request for resources via the Washington State Fire Service Mobilization Plan, no homes were destroyed and only one outbuilding was lost on the Renner Fire.

Finally: Cold Front and Rain
On August 29, a strong cold front ushered in a major change in the weather. During a two-day period, the Kettle Complex received below normal temperatures coupled with rain totals that measured from 0.25 inches to more than 0.5 inches. This weather event changed the incident's entire focus.

On September 8, the Kettle Complex transitioned back again to the Type 2 Washington Team #1 Incident Management Team. On September 20, a fourth Incident Management Team, the Oregon IMT #1, another Type 2 Team, took command of the Kettle Complex. Their focus was on monitoring, mop-up, and fire suppression repair work.

Fire Sizes in Acres

	Stickpin	Renner	Graves Mountain	Roy	North Boulder 2
Start of Complex August 17	**35,000**		**1,300**	**120**	
Washington IMT #1 (Type 2) to Pacific Northwest IMT #2 (Type 1) August 27	**48,885**	**11,200**	**Graves to Colville Complex**	**120**	
Pacific Northwest IMT #2 (Type 2) to Washington IMT #1 (Type 2) September 8	**54,278**	**13,524**	**8,587**	**120**	**232**
Washington IMT #1 (Type 2) to Oregon IMT #1 (Type 2) September 20	**53,925**	**13,799**	**8,593**	**120**	**232**

Appendix M – Sage-Grouse Habitat Fires

Bendire Complex

Date of Ignition
August 11, 2015

Cause
Lightning

Land Ownership at Fire Origin
Bureau of Land Management

Responding Initial Attack Resources
1 Helicopter, 20 Engines, 1 Hotshot Crew, 1 Helitack Crew, 4 Dozers, 5 Water Tenders, 2 Road Graders

Preparedness Level at Time of Ignition
National: PL 4
Local: PL 4

Acres Burned
49,628 Acres (as of 9/15/15)

Estimated Cost
$4,820,000 (as of 9/15/15)

Land Jurisdictions
Primarily Bureau of Land Management with scattered private ranches and nearby community of Westfall

Resources at Incident Peak
Total Personnel: 513
Crews: 13
Engines: 50
Helicopters: 3

Structures Destroyed
None

Cooperators
Bureau of Land Management, U.S. Forest Service, Malheur County Sheriff, Ironside Rangeland Fire Protection Association

Bendire Complex

For Interactive Map: http://arcg.is/1lPmmU6

Heavy Air Tankers and Dozers build fire line on the Bendire Complex. Photo courtesy of the Bureau of Land Management.

Suppression Actions and Challenges

On August 11, the Pole Creek and Bully Creek fires were ignited by lightning. Initial acreage for both fires was reported at 500 acres each. These fires eventually merged into the Bendire Complex. Initial Attack forces provided by the Bureau of Land Management's Vale District included: 20 Engines, 4 Dozers, 1 Crew, 1 Helitack Crew, 5 Water Tenders, and 2 Road Graders. At this time, the nearby Windy Ridge Fire was the priority for air resources.

On this same day, three other major fires started on or in the vicinity of the Vale District: Windy Ridge, Cornet, and Soda fires. The National Preparedness Level was 4.

On the evening of August 11, the Type 3 High Desert Incident Management Team took command of the fire.

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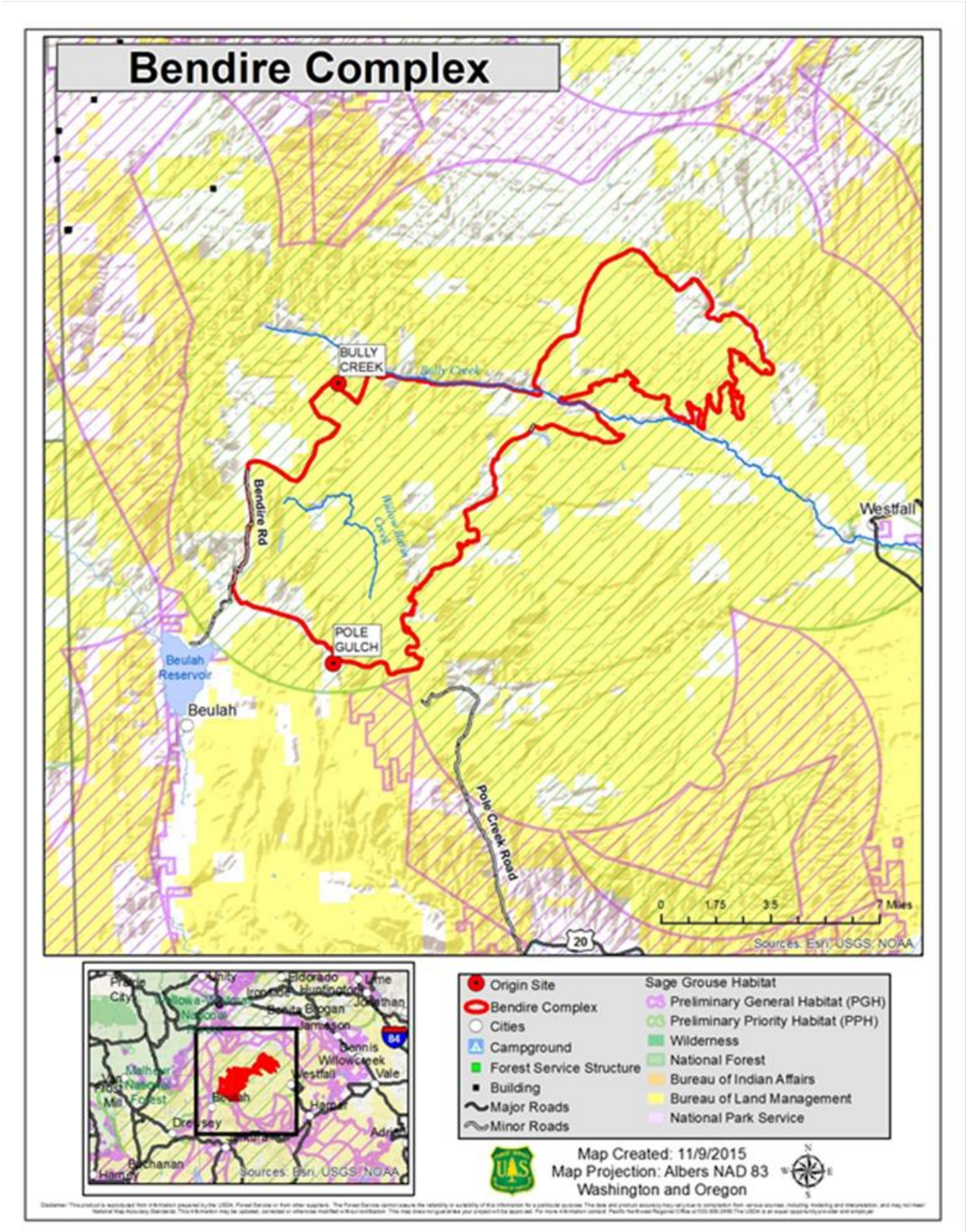
Helicopter on the Bendire Complex.


Bendire Complex
BULLY CREEK
Bully Creek
Bendire Rd
Westfall
POLE GULCH
Beulah Reservoir
Beulah
Pole Creek Road
20
0 1.75 3.5 7 Miles
Sources: Esri, USGS, NOAA
Origin Site
Bendire Complex
Cities
Campground
Forest Service Structure
Building
Major Roads
Minor Roads
Sage Grouse Habitat
Preliminary General Habitat (PGH)
Preliminary Priority Habitat (PPH)
Wilderness
National Forest
Bureau of Indian Affairs
Bureau of Land Management
National Park Service
Map Created: 11/9/2015
Map Projection: Albers NAD 83
Washington and Oregon

Residences Threatened
The next day, on August 12, nine residences were threatened. The Incident Management Team requested heavy Air Tankers, Single Engine Air Tankers (SEATs), Type 1 and Type 2 Helicopters, and additional overhead—particularly Division Supervisors and Heavy Equipment Bosses.

Incident objectives were to drop retardant primarily on the fire's eastern flank with heavy Air Tankers and hold the fire on the western flank along Bendire Road. Dozer lines would be constructed and burned out throughout the fire perimeter.

Critical Sage-Grouse Habitat

The Bendire Complex Fire burned within the Bully Creek Priority Management Area located north of Juntura, Oregon. The entire fire was within "High Priority Habitat" for sage-grouse which provides critical connectivity to adjacent Priority Management Areas.

In addition, the Castle Rock Area of Critical Environmental Concern (ACEC), located west of the fire, partially burned. To the north, the two additional Research Natural Areas (RNA)—also designated as ACECs—North Ridge Bully Creek and South Ridge Bully Creek, did not burn. The Air Tankers were able to slow the spread of the fire, preventing further fire growth to the east.

In April 2015, the Vale District of the Bureau of Land Management invited public comment on a "multi-year, multi-phase project that would use a combination of prescribed fire, silvicultural thinning, and herbicide and mechanical invasive species treatments that include western juniper removal to maintain and restore habitat for greater sage-grouse and other sagebrush species in the Malheur Resource Area in eastern Oregon." The Bendire Complex Fire burned much of this proposed 15-year project area.

Because of this critical habitat, a Department of the Interior review was conducted. As of late October, this report has not been released.

Extreme Fire Behavior
Winds were a continual problem on this incident that resulted in extreme fire behavior—running and spotting with torching in juniper stands. Initially, Hotshots, Engines, and Dozers attempted to hold the fire's north side at about 200 acres—until it spotted in gusty winds.

The northeast part of the fire grew to 8,000 acres on August 12 and to 30,700 acres by August 13. The fire ran into Bully Creek's green vegetation which temporarily stopped its forward spread.

Despite Strong Initial Attack, Sage-Grouse Habitat Degraded
The Vale District of the Bureau of Land Management dispatched a very strong assemblage of personnel and equipment during Initial Attack. Due to gusty winds and very dry fuel conditions, the fire made significant runs—resulting in the degradation of more than 40,000 acres of "High Priority" sage-grouse habitat.

Pushed by winds, the Bendire Complex Fire makes another run. Photo courtesy of the Bureau of Land Management.

Fuels were extremely dry with entire juniper boles (trunks) completely consumed by the fire. Some crowning occurred in old-growth juniper stands. There were patches of old-growth sagebrush that were eight-feet tall.

Fire Jumps Bully Creek
On August 14, a frontal passage produced consistent winds at 25 miles per hour, gusting to 30 mph.

The fire jumped Bully Creek and ran to the northeast for another 10,000 acres. Residences in the community of Westfall and ranches in Bully Creek were threatened. Resources were

assigned for structure protection.

Despite Return of Winds, Fire Lines Held at 44,000 Acres
On August 16, the Type 2 Oregon Incident Management Team #4 took command of the fire.

On this day, even though winds and frontal passages were again a concern, the fire lines held at 44,000 acres. To protect critical habitat, an effort was made to construct fire line around the approximately 1,500 acres of large sagebrush islands.

On August 21, transfer of command went to a Type 3 Incident Commander.

Bendire Complex Resources

Date	Acres	Percent Contained	Personnel	Crews	Engines	Helicopters	Cost To Date
Aug. 11 Type 3	500 BC 500 PG	0		1	20		$200K
Aug. 12	8,000	10	160	1	19	3	$950K
Aug. 13	30,700	10	272	5	35	0	$1.0 Million
Aug. 14	34,774	40	364	6	46	1	$1.4 Million
Aug. 15	42,708	25	405	7	50	1	$2.0 Million
Aug. 16 Type 2	44,267	30	360	7	30	1	$2.5 Million
Aug. 17	44,397	35	455	11	32	1	$2.8 Million
Aug. 18	44,397	50	513	13	31	1	$3.1 Million
Aug. 19	44,397	75	500	13	25	1	$3.4 Million
Aug. 20	44,397	85	255	4	15	1	$3.9 Million
Aug. 21 Type 3	44,397	95	72	1	9	0	$4.1 Million
Aug. 22	44,397	95	72	1	9	0	$4.1 Million
Aug. 23	44,397	95	72	1	9	0	$4.8 Million
Aug. 24	44,397	95	72	1	9	0	$4.8 Million
Aug. 25	44,397	100	72	1	9	0	Last report

Green shading represents the greatest number of that type of resource on the fire.

Appendix M – Sage-Grouse Habitat Fires (cont.) Cornet-Windy Ridge Fire

For Interactive Map:
http://arcg.is/1XxBUYj

Cornet-Windy Ridge Fire

Date of Ignition
Cornet - August 10, 2015
Windy Ridge - August 11, 2015

Cause
Lightning

Land Ownership at Fire Origin
Cornet – Private lands protected by Oregon Department of Forestry

Windy Ridge – Bureau of Land Management

Responding Initial Attack Resources
Cornet – 6 Crews, 4 Engines, 4 Dozers, 2 Water Tenders

Windy Ridge – 13 Engines, 8 Single Engine Air Tankers, 2 Helicopters, an unknown number of heavy Air Tankers

Preparedness Level at Time of Ignition
National: PL 4
Local: PL 4

Acres Burned
102,089 acres (as of 9/3/15)

Estimated Cost
$6.0 million (as of 9/3/15)

Land Jurisdictions
Private lands, Bureau of Land Management, Wallowa-Whitman National Forest

Resources at Incident Peak
Personnel: 677
Crews: 16
Engines: 34
Helicopters: 19

Structures Destroyed
25

Cooperators
Oregon Department of Forestry, Bureau of Land Management, U.S. Forest Service, Baker County, Oregon Department of Transportation

The Cornet Fire burning on August 11. Photo by Tricia Price.

When the Cornet and Windy Ridge fires ignited, the fire danger rating was extreme. Public use restrictions for campfires and chainsaws were in effect. On August 10-11, a Red Flag Warning was issued for "thunderstorms producing abundant lightning".

In northeast Oregon, this lightning storm ignited 31 fires that were detected by lookouts and aircraft across the Blue Mountain Interagency Dispatch Center's area of responsibility.

Monday and Tuesday, August 10 and 11

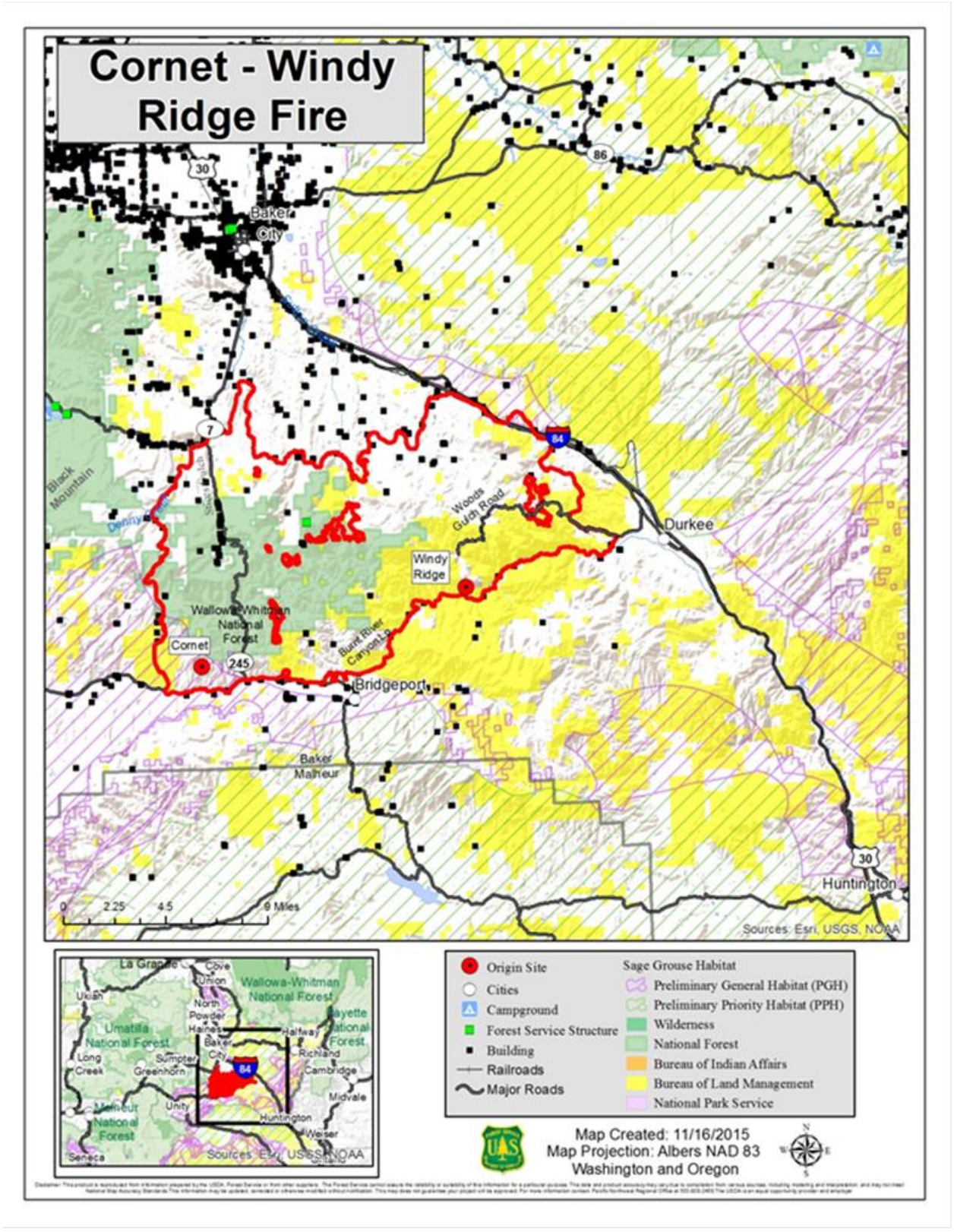
The Cornet Fire started at 3:58 p.m. on August 10 approximately seven miles east of Hereford, Oregon. The fire burned on private lands which were protected by the Oregon Department of Forestry, Wallowa-Whitman National Forest, and the Bureau of Land Management's Vale District.

The fire's southern portion was located in "Preliminary General Habitat" for sage-grouse.

The Cornet Fire was initially managed by a Type 3 Incident Commander.

To the northeast, the Windy Ridge Fire also started on August 10 at approximately 9:56 a.m. in rugged, steep terrain in Burnt River Canyon. Thirteen engines responded. Hand crews were needed for this terrain, but were unavailable. Fire managers attempted to contain the fire with retardant drops. Eight Single Engine Air Tankers (SEATs) and an unknown number of heavy Air Tankers worked the fire. Two Helicopters also responded. By the end of the day, the Windy Ridge Fire burned 1,200 acres.

High temperatures, low relative humidity, and a Haines Index of 5-6 encouraged rapid fire growth.


Cornet - Windy Ridge Fire
Baker City
Durkee
Windy Ridge
Cornet
Bridgeport
Huntington
Wallowa-Whitman National Forest
Black Mountain
Woods Gulch Road
Burnt River Canyon Ln
Baker
Malheur
0 2.25 4.5 9 Miles
Sources: Esri, USGS, NOAA
La Grande
Cove
Union
Wallowa-Whitman National Forest
Ukiah
North Powder
Haines
Umatilla National Forest
Halfway
Fayette National Forest
Baker City
Richland
Long Creek
Sumpter
Greenhorn
Cambridge
Midvale
Unity
Malheur National Forest
Huntington
Weiser
Seneca
Origin Site
Cities
Campground
Forest Service Structure
Building
Railroads
Major Roads
Sage Grouse Habitat
Preliminary General Habitat (PGH)
Preliminary Priority Habitat (PPH)
Wilderness
National Forest
Bureau of Indian Affairs
Bureau of Land Management
National Park Service
Map Created: 11/16/2015
Map Projection: Albers NAD 83
Washington and Oregon

The Cornet Fire burned actively through the night of August 10 with crown fire runs and long-range spotting. By the end of the day on August 11, it had burned 2,000 acres. Initial Attack forces consisted of 6 Crews, 4 Engines, 4 Dozers, and 2 Water Tenders.

The Baker County Sheriff issued a Level 1 Evacuation Notice—*"Be aware of the situation: BE READY*"—to residents in the Stices Gulch and Black Mountain areas. A total of 112 residences and 150 out-buildings were threatened.

The Cornet Fire on August 12.

Wednesday, August 12

At 6 p.m. on August 12, the Oregon Type 2 Incident Management Team #4 took command of the Cornet Fire.

Fire managers predict continued fire perimeter growth—especially uphill. The Spot Weather Forecast noted: *"Deep mixing height of around 10,000 feet this afternoon could allow plume development and more plume-dominated winds in the afternoon."*

Firefighters held the south and west flanks and line construction continued to the northeast.

A Level 3 Evacuation Order—"EVACUATE IMMEDIATELY*: GO"*—is issued by the Baker County Sheriff's Office for the Stices Gulch Road area. A Level 2 Evacuation Order—*"YOU MUST PREPARE TO LEAVE AT A MOMENT'S NOTICE"*—is issued for the Denny Creek and the Black Mountain areas.

Thursday, August 13

The national Preparedness Level is 5. Resources are scarce both in the Northwest and nationally. However, personnel on the Cornet Fire more than doubled to 457 people.

The wind was from the south to southwest at 9 to 15 mph with gusts to 20 mph. Temperatures were 95 to 100 degrees with relative humidity in the teens. Fire behavior forecasts anticipated winds to increase after 2 p.m.

The fire burned grass/shrubs in the valleys, juniper and pine farther upslope, and mixed conifer at higher elevations and ridges. Line construction continued to the northeast. Overnight, the fire spotted into Stices Gulch. Two threatened structures were protected.

In response to the Cornet Fire, Oregon Governor Kate Brown invoked the Emergency Conflagration Act. This declaration authorized the Oregon Office of the State Fire Marshal to mobilize structure firefighters and equipment from throughout Oregon to assist local fire resources. Baker County protected structures and additional structure firefighting resources arrived.

The Cornet Fire and Windy Ridge Fire burning side-by-side on August 13.
Photo by Bureau of Land Management.

The objectives were: stop fire progression into areas with residences; minimize acres burned on private land and sage-grouse habitat; protect communication infrastructure, mines, and cattle ranches.

The Baker County Sheriff's Office issued a Level 3 Evacuation Order for Stices Gulch and a Level 2 Evacuation Order for Rancheria Creek, Black Mountain, and Denny Creek. An area closure on the Wallowa-Whitman National Forest was also enacted.

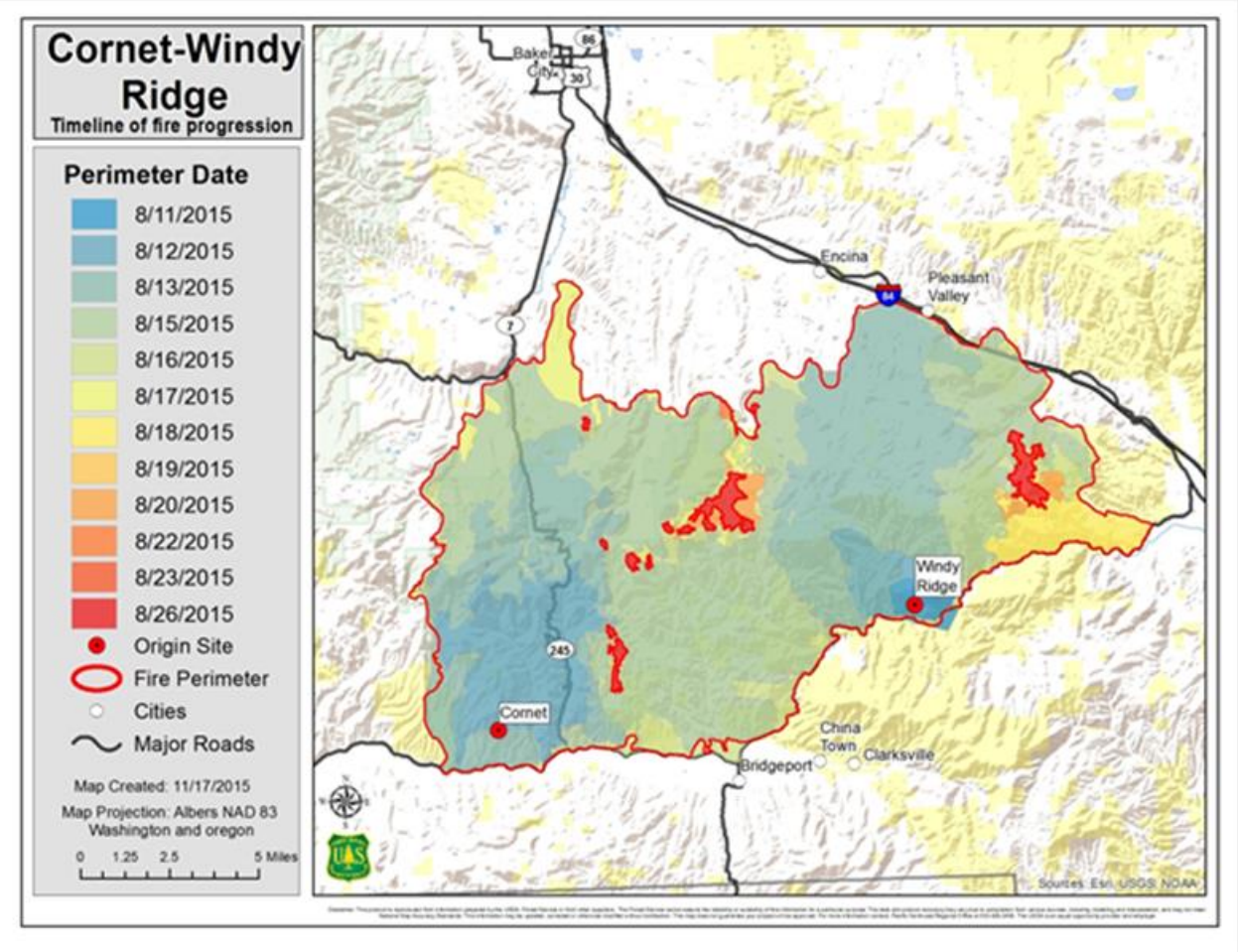
Two residences were destroyed with another 17 threatened. A total of 51 people were evacuated.

As high winds and atmospheric instability continued to affect fire behavior, it appeared that the two fires would merge into one large fire.

The Windy Ridge Fire Closes Interstate 84

Initially, the Windy Ridge Fire moved out of the Burnt River Canyon toward the northwest. By 11 p.m. on August 11, the Fire Progression Map estimated the fire size at 3,759 acres. Twenty four hours later on August 12, the fire had consumed 10,300 acres. A south wind was pushing the fire toward Interstate 84.

By 10:40 p.m. on August 13, the fire is 22,347 acres and had reached Interstate 84 just northwest of Durkee. (See fire progression map on next page.)



The Oregon Department of Transportation closed Interstate 84 in both directions twice. The first occurrence was at 3:29 p.m. between Baker City and Ontario, Oregon. At 6:25 p.m., this closure was extended to Pendleton and Ontario—a distance of 170 miles. The freeway was reopened at 8 p.m.

Friday, August 14

On August 14, a second closure of Interstate 84 was issued at 3:12 p.m. between Baker City and Ontario. At 4:51 p.m., this closure was extended to La Grande as Baker City filled up with trucks. The freeway was reopened at 7:39 p.m.

Fire managers were concerned with impacts to pipelines and the Union Pacific transcontinental mainline train tracks that parallel Interstate 84. The Union Pacific continued to operate during the fire and pipeline operations were not interrupted.

On August 14, strong winds are forecasted in the central Blue Mountains from noon to 11 p.m.

Southwest Incident Management Team #2, a Type 1 IMT, took command of both the Cornet and Windy Ridge fires. A Unified Command was established with the Oregon State Fire Marshal's Incident Management Green Team. This state team prioritized structure protection on both fires.

The Cornet Fire is now 26,000 acres, 5 percent contained, with a total of 457 personnel.

The Windy Ridge Fire is 22,862 acres, 5 percent contained, with a total of 181 personnel.

Cornet-Windy Ridge Fire

Saturday, August 15

The combined fires are 88,433 acres with 5 percent containment. Firefighting resources now include:

- 628 Personnel
- 16 Crews
- 34 Engines
- 4 Helicopters
- 12 Dozers
- 9 Water Tenders

Firefighters conduct burn out operations in the evening on the northern portion of the fire. Crews continue to patrol and hold fire lines while mopping-up around structures.

Highway 245 was closed but Highway 7 remains open. A total of 413 people have been evacuated with six residences destroyed and 187 threatened.

Sunday, August 16

The Cornet and Windy Ridge fires merge into one fire and are now called the Cornet-Windy Ridge Fire.

Crews continue to build containment lines around the fire's perimeter while patrolling and mopping-up around structures and the perimeter.

The Cornet Fire on August 12.

Monday, August 17

On this day, the forecasted weather was sunny with west to northwest winds up to 7 mph and afternoon gusts of 15 mph. Incident Commanders planned to implement burn out operations on Woods Gulch Road and Burnt Canyon Road to prevent the fire from spreading to the east.

Tuesday, August 18

Burn out operations continued with aerial ignition. Crews built containment lines around the fire's perimeter and mopped-up around structures and the perimeter. Eight structural Engines worked in Stices Gulch. Highway 245 remained closed 11 miles north of Hereford while the Oregon Department of Transportation continued to fell trees on the road's shoulders. Forecasted weather called for winds out of the north/northwest to 9 mph with afternoon gusts to 18 mph.

There are now three areas of active fire:

- Denny Creek – On the west side of the fire. Hose lays are in place.
- Sutton Creek – North side, large unburned island.
- Burnt River Canyon Road and Woods Gulch Road – On the east side, fire backed off of ridgetops.

Wednesday, August 19

The weather remained favorable with light winds.

Thursday, August 20

Highway 245 will be reopened today for through-traffic to Unity.

Personnel and equipment resources are slowly being released from this incident for reassignment to other wildfires in the Pacific Northwest Region. Currently, 589 personnel are on the Cornet-Windy Ridge Fire.

Gusty winds are forecasted for tonight into Friday.

To date, 187 single residences and 275 minor structures have been threatened. Four residences and 21 minor structures have been lost. A total of 413 people were evacuated during the fire. One minor injury to a firefighter has been reported.

August 21-26

Strong gusty winds are forecasted. Firefighters continue to mop-up and patrol the fire perimeter. Rehabilitation and erosion prevention activities have been initiated.

On August 24, command of the fire was transferred to the Oregon Department of Forestry Type 1 Incident Management Team. On August 26, command of the fire was transferred back to the local unit under a Type 4 Incident Commander.

As of September 3, fire acreage is 102,089 acres.

Key Dates

- **August 10**: Cornet Fire ignition
- **August 11**: Windy Ridge Fire ignition
- **August 12**: Oregon Incident Management Team 4 (Type 2 IMT) takes command of Cornet Fire
- **August 14**: Southwest Incident Management Team 2 (Type 1 IMT) takes command of both the Cornet and Windy Ridge fires
- **August 24**: Command of the Cornet-Windy Ridge Fire transferred to the Oregon Department of Forestry Incident Management Team #3 (Type 1 IMT)
- **August 26**: Command of the fire transferred to the local unit under a Type 4 Incident Commander

Resources on the Cornet-Windy Ridge Fire

Date	Acres Burned	% CTN*	Crews	Helicopters	Engines	Dozers	Water Tenders	People
Aug. 15	88,433	5	16	4	34	12	9	628
Aug. 16	96,762	30	13	9	28	6	9	618
Aug. 17	No	Report						
Aug. 18	99,270	35	15	10	30	6	8	677
Aug. 19	103,540	45	14	16	30	9	9	675
Aug. 20	103,540	70	10	16	19	8	9	589
Aug. 21	103,887	75	9	19	22	10	6	482
Aug. 22	103,887	75	6	19	10	10	6	375
Aug. 23	103,887	80	5	4	10	8	6	351
Aug. 24	103,887	80			6	5	2	37
Aug. 25	103,887	85			6	5	2	37
Aug. 26	103,887	85	1		4			33

***"% CTN" is: Percent Contained**

Appendix M – Sage-Grouse Habitat Fires (cont.) Eldorado Fire

For Interactive Map:
http://arcg.is/1XxC0zf

Eldorado Fire

Date of Ignition
August 14, 2015

Cause
Unknown

Land Ownership at Fire Origin
Oregon Department of Forestry

Responding Initial Attack Resources
12 Engines, several Dozers and Air Resources

Preparedness Level at Time of Ignition
National: PL 5
Local: PL 5

Acres Burned
20,635 acres (as of 10/2/15)

Estimated Cost
$5,400,000 (as of 10/2/15)

Land Jurisdictions
Baker County, the Bureau of Land Management Vale District, U.S. Forest Service Walla-Whitman National Forest, Ironside Range Protection Association, and private ranch lands

Resources at Incident Peak
Personnel: 412
Crews: 15
Engines: 27
Helicopters: 4

Structures Destroyed
4

Cooperators
Baker County, the Bureau of Land Management Vale District, U.S. Forest Service Walla-Whitman National Forest, Ironside Range Protection Association, and private ranchers

The Eldorado Fire was discovered on the morning of Friday August 14. The fire started approximately five miles south of Unity on Oregon Department of Forestry-protected lands near the Oregon State administered Eldorado Campground.

The fire involved multiple jurisdictions: Baker County, the Bureau of Land Management Vale District, U.S. Forest Service Walla-Whitman National Forest, Ironside Range Protection Association, and private ranch lands.

Fire managers were concerned about impacts to grazing from the loss of grass and range improvements.

Private structures were also threatened with Level 3 Evacuations "EVACUATE IMMEDIATELY—*GO"* ordered for 125 residences in these communities:

- Beam Creek Area
- Eldorado Ditch Area
- Long Creek Area (Baker County)
- Long Creek Reservoir
- Camp Creek South of Highway 26

Owners of an additional 36 homes were under Level 2 Evacuation orders: *"YOU MUST PREPARE TO LEAVE AT A MOMENT'S NOTICE".*

U.S. Highway 26 was closed between Unity and Ironside.

Critical High Priority Sage-Grouse Habitat Burning
The Eldorado Fire was positioned just north of the Bendire Complex, which started on August 11. Like the Bendire Complex, the Eldorado Fire was burning on critical "High Priority" sage-grouse habitat.

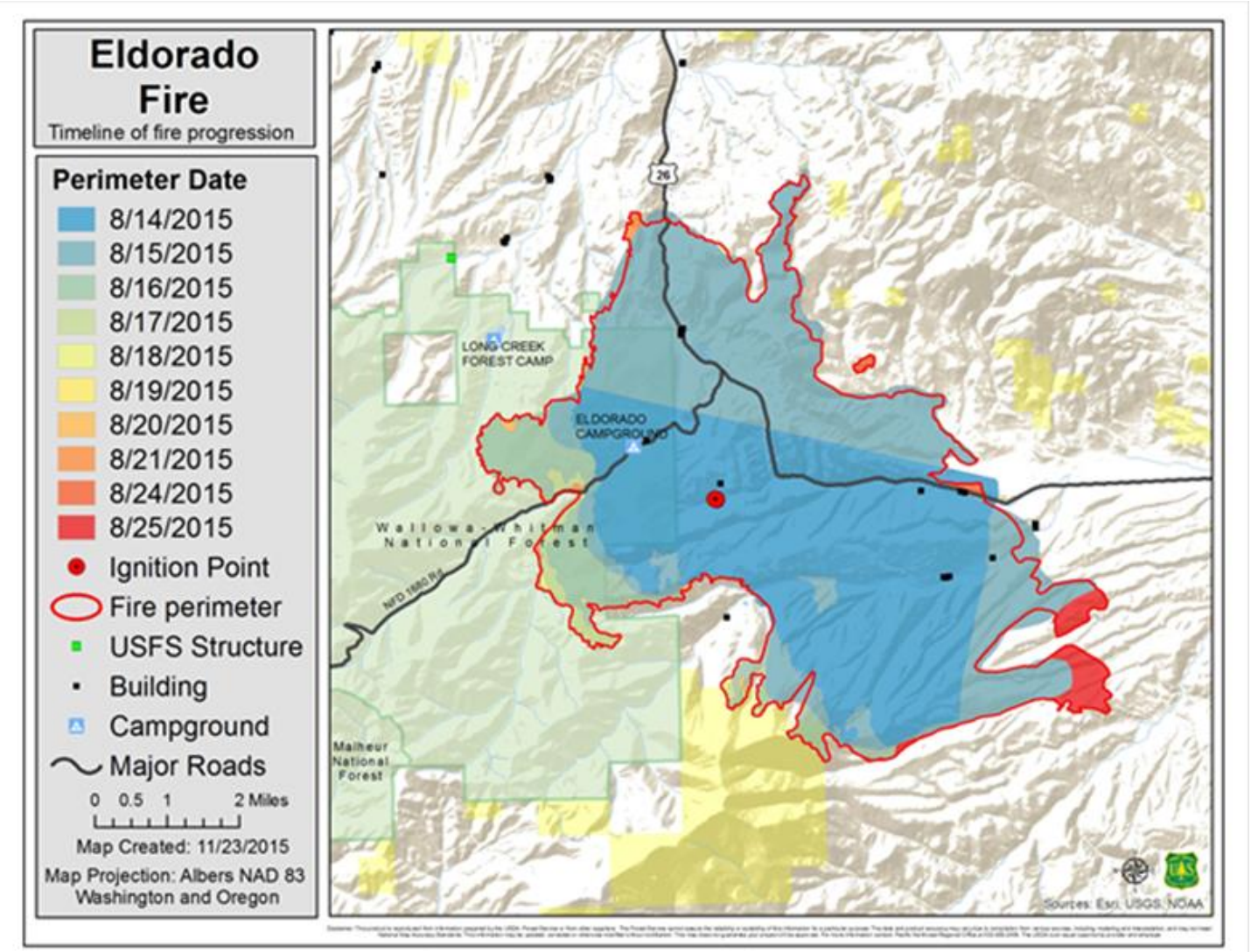
The Energy Release Component (ERC), an indicator of overall fuel dryness and potential for large fire development, was at 97 percent. The entire area was in a prolonged and severe drought.

The fire Preparedness Level was at 5, both nationally and in the Pacific Northwest—indicating firefighting resources were extremely scarce.

As of October 18, 2015 the cause of the fire is unknown.

Initial Attack
Several Dozers and 12 Engines responded as well as air resources. Hand Crews were not available. A Type 3 Incident Commander was assigned command of the fire.

On the fire's second day—August 15—a Type 1 Oregon Department of Forestry Incident Management Team is ordered to take command of the fire. A total of 50 firefighters are now on the line. On this second day, aircraft attacked the fire—but were pulled off in the afternoon due to


Eldorado Fire
Timeline of fire progression
Perimeter Date
8/14/2015
8/15/2015
8/16/2015
8/17/2015
8/18/2015
8/19/2015
8/20/2015
8/21/2015
8/24/2015
8/25/2015
Ignition Point
Fire perimeter
USFS Structure
Building
Campground
Major Roads
0 0.5 1 2 Miles
Map Created: 11/23/2015
Map Projection: Albers NAD 83
Washington and Oregon
26
LONG CREEK FOREST CAMP
ELDORADO CAMPGROUND
Wallowa-Whitman National Forest
NFD 1880 Rd
Malheur National Forest
Sources: Esri, USGS, NOAA

high winds.

By 9 p.m. the second day, the fire progression map (see previous page) indicates that the Eldorado Fire grew to 13,563 acres.

By the end of this day, August 15, the fire grows an additional 5,100 acres—for a total of 18,600 acres.

Sunday Aug. 16

On this day, the wind pushes the fire's west and south sides. Weather forecasts predict a dry cold front coming through the area early the next day with 10-15 mile per hour winds.

By 9 p.m. the fire has grown to 20,601 acres. (Final fire size on August 29, when its management is turned over to local agencies, will be 20,635 acres.)

Engine crews work throughout the night to extinguish hot spots along the fire's edge and strengthen containment lines. Resources on the fire now include 4 20-Person Crews, 7 Dozers, 12 Engines, and 1 Helicopter. A total of 201 firefighters are assigned.

Level 1 Evacuation notifications—*"Be aware of the situation: BE READY"*—remain in effect for Shirts Creek, Job Creek and south of Job Creek Road, east of Bull Run Road, and south of Campbell Lane.

The Eldorado Fire on August 16.

Eldorado Fire Resources

Date	Total Acres Burned	Percent CTN*	People	Crews	Engines	Helicopters
Aug. 14	12,000	0	50	0	12	1
Aug. 15	18,600	0	161	2	12	1
Aug. 16	20,070	10	201	4	12	1
Aug. 17	20,500	30	285	9	14	4
Aug. 18	20,611	35	348	11	20	4
Aug. 19	20,611	40	435	14	26	4
Aug. 20	20,611	50	492	15	27	4
Aug. 21	20,611	55	450	13	27	4
Aug. 22	20,611	65	358	10	23	2
Aug. 23	20,611	70	315	9	17	4
Aug. 24	20,611	75	256	7	17	4
Aug. 25	20,611	80	170	6	11	0
Aug. 26	20,635	80	32	1	4	0

***"Percent CTN" is: Percent Contained.**

The greatest number of resources assigned during the course of the fire—that occurred on Aug. 20—is highlighted in green.

Eldorado Fire Key Dates and Events

August 14-16 – The days in which the fire exhibited the most growth.

August 19 – At approximately 7:15 p.m. on August 19, a Croman S-61A helicopter working on the Eldorado Fire eight miles southeast of Unity, experienced a "hard landing". The incident occurred on the west portion of the fire near King Creek in the vicinity of a medical unit serving firefighters on the line. According to the Oregon Department of Forestry, two persons were on board. Both exited the helicopter and signaled to medical unit personnel that they were unhurt. While no significant injuries were apparent, both individuals were transported by ambulance to a local medical center for further evaluation.

August 20 – The most resources are assigned to the fire (see table above).

August 26 – The Oregon Department of Forestry Type 1 Incident Management Team returns the fire to the local units.

Leslie Gulch Fire

Date of Ignition
June 28, 2015

Cause
Lightning

Land Ownership at Fire Origin
Bureau of Land Management

Responding Initial Attack Resources
1 Type 3 Incident Commander, 1 Type 1 Crew, 1 Type 2 Initial Attack Crew, 2 Dozers, 2 Water Tenders, 5 Type 4 Engines, and 1 Air Tanker

Preparedness Level at Time of Ignition
National: PL 3
Local: PL 3

Acres Burned
8,688 Acres (as of 7/2/15)

Estimated Cost
Original estimate
$850,000 (as of 7/2/15)

Land Jurisdictions
Primarily Bureau of Land Management with scattered private ranches

Resources at Incident Peak
Total Personnel: 165
Overhead: 1 Type 3 Incident Commander
Crews: 3
Engines: 18
Helicopters: 3
Heavy Air Tankers and Single Engine Air Tankers

Structures Destroyed
None

Cooperators
Bureau of Indian Affairs, Bureau of Land Management, U.S. Forest Service

For Interactive Map: http://arcg.is/1Nlw62T

Leslie Gulch Fire
Initial Fire Suppression Actions

Lightning ignited the Leslie Gulch Fire on the remote east side of the Bureau of Land Management's Vale District on June 28 at approximately 10:50 p.m.

Road and area closures were quickly put into effect. The fire was managed as 100 percent full suppression by a Type 3 Incident Commander. Because of the limited access, there was potential for the fire to spread south toward the city of Jordan Valley, Oregon.

V I D E O

Watch this video of the fire conditions during Initial Attack on the Leslie Gulch Fire.

http://www.youtube.com/watch?v=HEqrDEDl2ME

Note the steep terrain and windy conditions, and how the fire is burning on both sides of Leslie Gulch Road.

Fire Escapes Initial Attack

Once the fire escaped Initial Attack, the objective was to go direct where possible and burn out from dozer lines. The initial Incident Status Summary (ICS) 209 report the morning of June 30 stated the fire had reached 4,000 acres in the first eight hours.

At that time, because both the local and National Preparedness Level was 3, available fire suppression resources were not constrained. Air support was available and used effectively with Heavy Air Tankers and Single Engine Air Tankers loading nearby in Ontario and Boise.

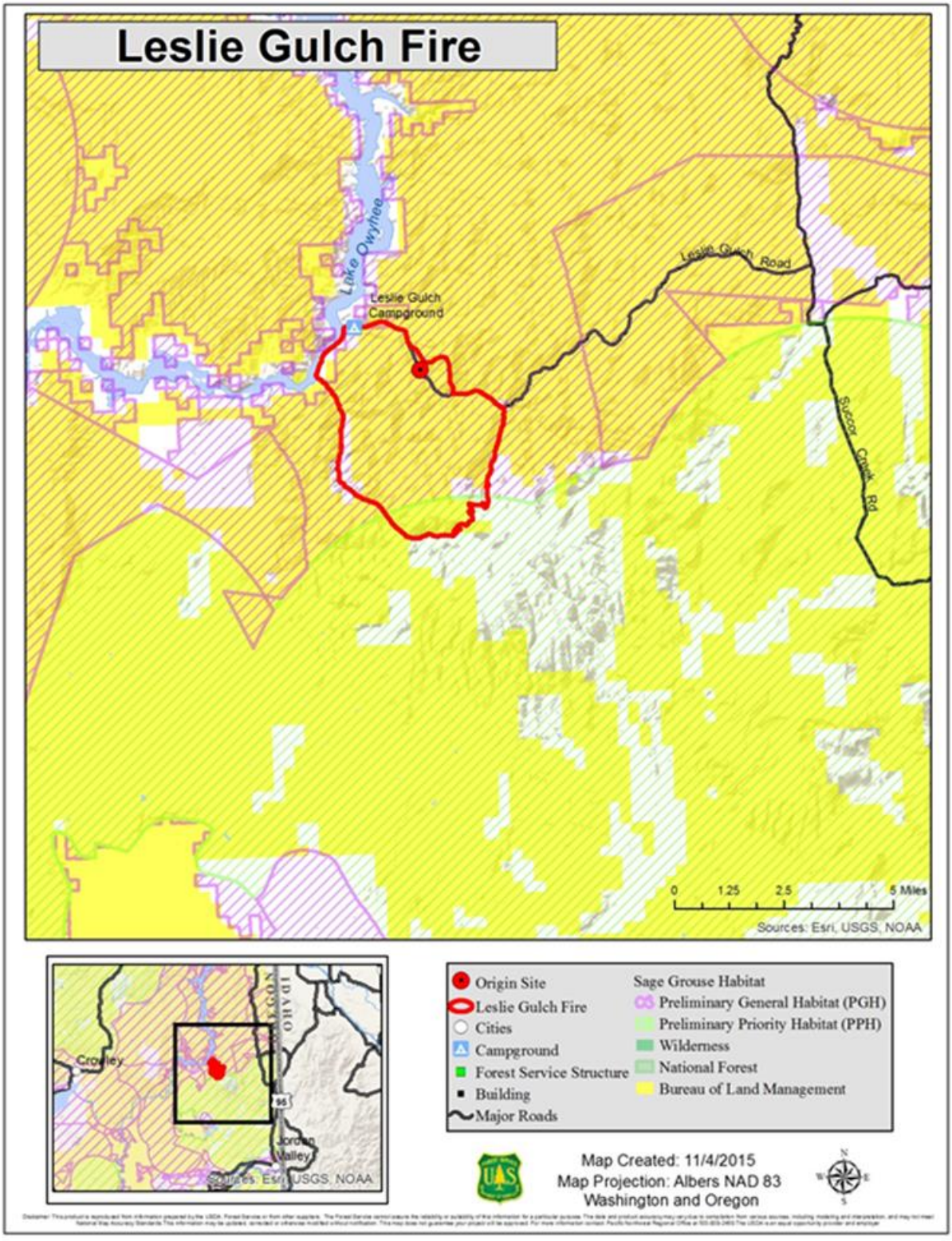
June 29 Forecast

Weather conditions on the Leslie Gulch Fire were a concern because of the wind, low relative humidity, and high temperatures.

At approximately 3:30 p.m. on June 29, fire managers asked the National Weather Service for a Spot Weather Forecast. At that time, observations on the fire, at an elevation of 4,800 feet, included: temperature 99 degrees Fahrenheit; winds southeasterly 8-10 mph; and relative humidity of 18 percent with 50 percent cloud cover.

The subsequent National Weather Service forecast stated: "*Hot with a slight chance of thunderstorms, moist southerly flow aloft. Slight chance of a shower or thunderstorm this evening. Thunderstorms will be high-based, so outflow winds will be the main concern…with gusts to 50 mph possible.*"

On July 1, an additional request for a Spot Weather Forecast recorded a 106 degree Fahrenheit temperature and 12 percent relative humidity.


Leslie Gulch Fire
Lake Owyhee
Leslie Gulch Campground
Leslie Gulch Road
Succor Creek Rd
0 1.25 2.5 5 Miles
Sources: Esri, USGS, NOAA
Origin Site
Leslie Gulch Fire
Cities
Campground
Forest Service Structure
Building
Major Roads
Sage Grouse Habitat
Preliminary General Habitat (PGH)
Preliminary Priority Habitat (PPH)
Wilderness
National Forest
Bureau of Land Management
Crowley
95
Jordan Valley
Sources: Esri, USGS, NOAA
Map Created: 11/4/2015
Map Projection: Albers NAD 83
Washington and Oregon

The Leslie Gulch area in the spring. Photo courtesy of the Bureau of Land Management.

The Leslie Gulch Fire Environment

The remote Owyhee Canyonlands area in which the Leslie Gulch Fire occurred is known for its steep and rugged terrain. There is only one access road into this area.

In 1983, more than 11,000 acres were designated by the BLM as an Area of Critical Environmental Concern (ACEC) for this area's rare plants, rock formations, and California bighorn sheep population. Five plants are unique and found only in Leslie Gulch.

Three wilderness study areas are also located within the Owyhee Canyonlands. In addition, a wild horse management area is nearby. While most of the area is designated as "General Priority Habitat" for sage-grouse, the Leslie Gulch Fire did burn into some "High Priority" sage-grouse habitat on the extreme southern portion of the fire.

The Owyhee Reservoir is positioned at the bottom of the canyon on the west. A boat ramp provides access to the reservoir at Leslie Gulch Campground. At the time of the Leslie Gulch Fire, livestock were on the range.

Ironically, Leslie Gulch was named for local rancher Hiram E. Leslie, who was struck by lightning here in 1882.

7 Day Significant Fire Potential

The lightning that ignited the Leslie Gulch Fire was predicted in the "7 Day Significant Fire Potential" report (shown on right) that was released on June 27.

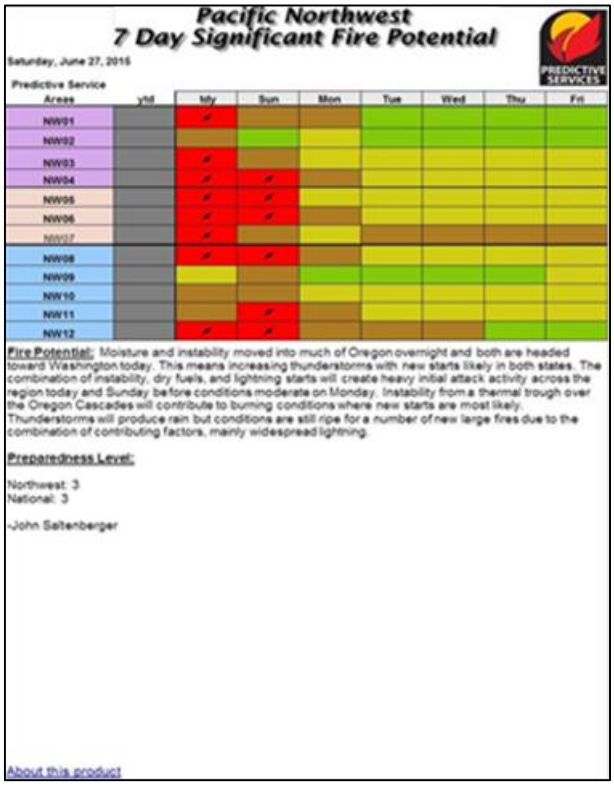
This report indicated:

"The combination of instability, dry fuels, and lightning starts will create heavy Initial Attack activity across the region today and Sunday before conditions moderate on Monday."

Large Fire Potential

In the Leslie Gulch area, cheatgrass was abundant due to May precipitation followed by warm temperatures.

See graph on next page that indicates this Large Fire potential on the Energy Release Component graphic for the Predictive Services Area 12 Southeastern Oregon Sagebrush-Steppe.



Pacific Northwest
7 Day Significant Fire Potential

Saturday, June 27, 2015

PREDICTIVE SERVICES

Predictive Service Areas	ytd	Mly	Sun	Mon	Tue	Wed	Thu	Fri
NW01		✓						
NW02								
NW03		✓						
NW04		✓	✓					
NW05		✓	✓					
NW06		✓	✓					
NW07		✓						
NW08		✓	✓					
NW09								
NW10								
NW11			✓					
NW12		✓	✓					

Fire Potential: Moisture and instability moved into much of Oregon overnight and both are headed toward Washington today. This means increasing thunderstorms with new starts likely in both states. The combination of instability, dry fuels, and lightning starts will create heavy initial attack activity across the region today and Sunday before conditions moderate on Monday. Instability from a thermal trough over the Oregon Cascades will contribute to burning conditions where new starts are most likely. Thunderstorms will produce rain but conditions are still ripe for a number of new large fires due to the combination of contributing factors, mainly widespread lightning.

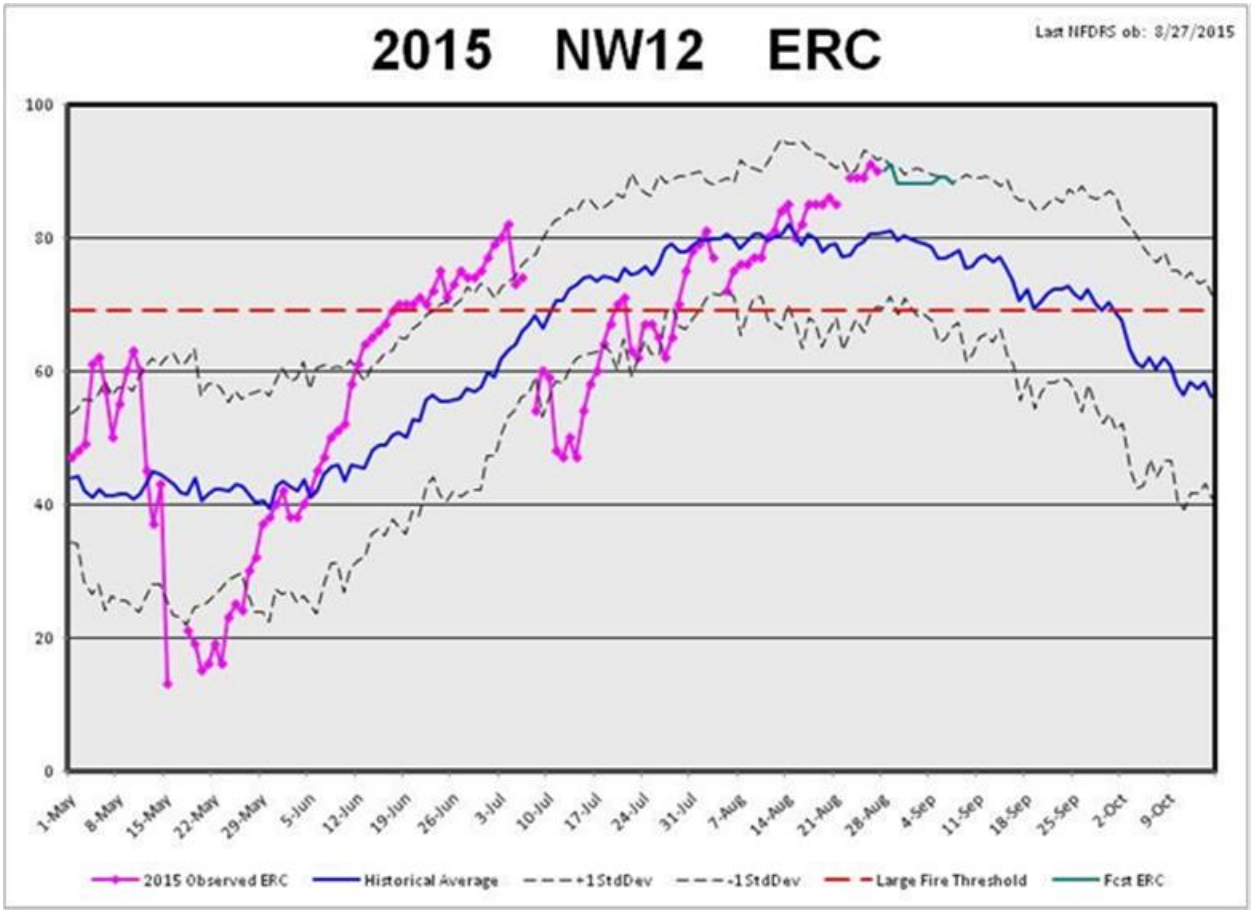
Preparedness Level:

Northwest: 3
National: 3

-John Saltenberger

About this product

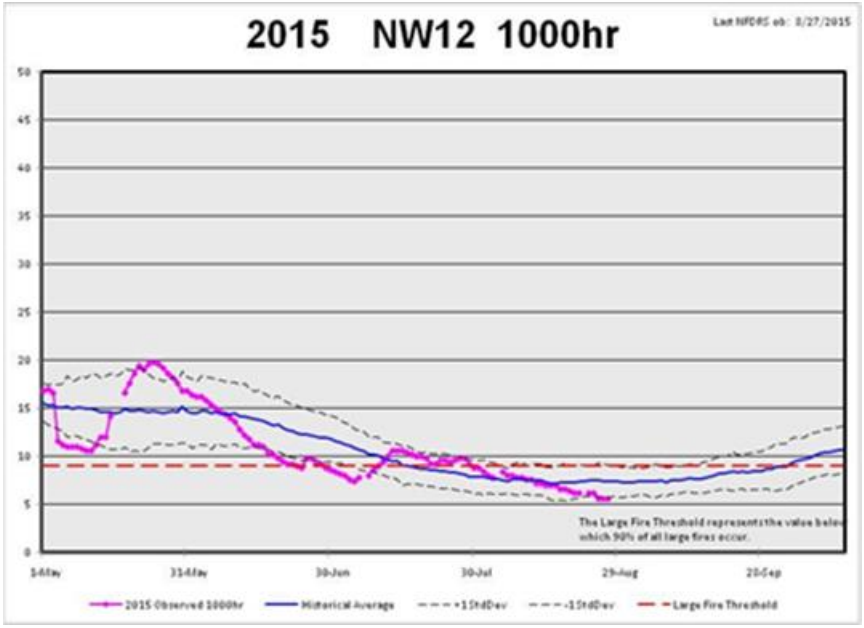
Note how this graphic indicates that at the end of June the fire area was well above the threshold for Large Fire development.



Critically Dry Fuels

The graph on right depicts the extremely dry condition of 1,000 hour fuels (3 to 6-inch size) in the southeastern Oregon Predictive Services Area 12 Sagebrush-Steppe.

Even early in the 2015 fire season, at the end of June, these fuels were well below historical averages and primed for potentially Large Fire development.



Effective Attack

The Type 3 Incident Management Team ultimately burned out a mid-slope road following a retardant line built by Single Engine Air Tankers while Heavy Air Tankers dropped retardant on the head of the fire—successfully slowing its forward movement toward the south.

A dozer line was then constructed, burned-out, and held from the mid-slope road toward the Owyhee River to the west. Three helicopters supported these efforts.

No injuries were reported at any time during the course of this fire.

On July 4, the Leslie Gulch Fire was 100 percent contained. Its final size was 8,688 acres.

Leslie Gulch Resources

Date	Acres	Percent Contained	Personnel	Crews	Engines	Helos	Dozers	Water Tenders	Cost to Date
Jun.30	4,000	0	65	2	5	2	2	2	$500K
Jul. 1	9,000	30	100	1	13	4	3	3	$700K
Jul. 2	8,688	70	165	3	18	3	2	4	$750K
Jul. 3	8,688	90	103	1	14	2	?	?	$800K
Jul. 4	8,688	100	62	1	7	0	0	3	$850K

Shaded boxes denote highest resource totals on the fire.

No structures were lost. (Four structures were located within three miles of the fire.)

Appendix N – Canyon Creek Complex

For Interactive Map: http://arcg.is/1XxAWeM

Canyon Creek Complex

Land Ownership at Fire Origin
U.S. Forest Service

Ignition Date
August 12, 2015

Cause
Lightning

Preparedness Level at Time of Ignition
National: PL 4
Local: PL 4

Acres Burned
110,422 acres (as of 10/8/15)

Estimated Cost
$31,192,000 (as of 10/8/15)

Land Jurisdictions
U.S. Forest Service, Bureau of Land Management, Oregon Department of Forestry

Resources at Incident Peak
Total Personnel: 1,026
Crews: 26
Engines: 82
Helicopters: 9

Structures Destroyed
54

Cooperators
U.S. Forest Service, Bureau of Land Management, Oregon Department of Forestry, Oregon State Fire Marshal, Grant County Sheriff, Grant County Road Department, Oregon Department of Transportation, Oregon National Guard, several rural fire departments

Regional Overview

Northwest Coordination Center Outlook: July through September 2015 – "Above Average Risk for Large Costly Fires is Expected"

The three-month forecast outlook for the Pacific Northwest Region that was distributed on June 1 from the Northwest Coordination Center informed:

"The risk of large, costly fires (mainly from lightning) is expected to increase dramatically in July and continue into August as temperatures increase with summer heat in fire season. Above average risk for large, costly fires is expected across the entire northwest geographic area due to drought, warm temperatures, and low snowpack. Even typical amounts of lightning in July and August could prove problematic."

Red Flag Warning for Abundant Lightning

On August 8, 2015 the Pendleton, Oregon National Weather Service Forecast Office issues a Red Flag Warning for: *"Thunderstorms producing abundant lightning from 11 a.m. on Sunday, August 9 through 11 p.m. on Tuesday, August 11."*

Starting on August 10, for three consecutive days, lightning storms impact the Malheur National Forest—as well as all of eastern Oregon. Beginning at 4 a.m. on Wednesday, August 12, another new lightning storm passes over the Malheur National Forest.

August 10 and 11

The Monday morning August 10 National Weather Forecast states: *"Red Flag Warning in effect until 11 p.m. Tuesday for thunderstorms producing abundant lightning in all fire weather zones."* The Red Flag Warning is implemented on Tuesday, August 11 with *"a Red Flag Warning in effect until 11 p.m. for thunderstorms producing abundant lightning in all fire weather zones.* "There is also acknowledgement that this warning might have to be extended.

August 12
Prepared for the Worst

Lightning continues into Wednesday morning. Forecasted temperatures were 87-94 degrees with relative humidity of 9 to 14 percent. The Malheur National Forest Fire Management Officer is prepared for the worst.

On August 12—in anticipation of new fire starts—the Malheur National Forest Fire Management Officer reports for duty at 5:30 a.m. As expected, new fire starts are reported from the Forest's five staffed fire lookouts. The phones at the John Day Interagency Dispatch Center are lighting up.

(This Canyon Creek Complex Fire Narrative Timeline Continued on Page 205)

B A C K G R O U N D

Large Fires in the Southern Blue Mountains – the Canyon Creek Complex Fire Area

Portland, Oregon is home to the Northwest Coordination Center for wildfires in Oregon and Washington. It is one of 10 centers nationwide. Each center has a Predictive Services Unit that provides daily products to alert field managers of fire potential and 7-day as well as monthly prediction outlooks.

The Predictive Services Team also analyzes data to discern trends for each of the 12 Predictive Service Zones in Oregon and nine zones in Washington.

An analysis of fires was conducted by the Northwest Coordination Center for the Blue Mountains and Strawberry Mountains (area NW11, the Canyon Creek Complex Fire area) from 2004 through 2011. During this eight-year period, there were 2,640 fires with 29 becoming Large Fires. (For the purposes of this analysis, they defined Large Fires as 1,200 acres and larger.) Twenty-two of these Large Fires were started by lightning. Overall, 1.1 percent of all fires during this period became Large Fires (see table below).

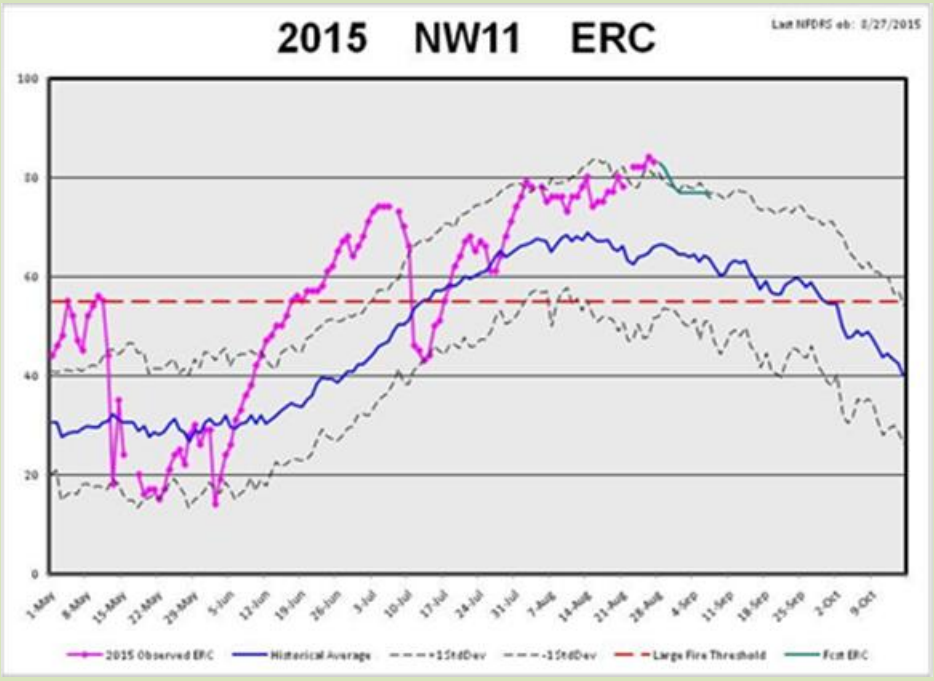
	June 15-30	July	August	September	October 1-15
Large Fires	**0**	**10**	**14**	**5**	**0**
Total Fires	**138**	**738**	**1,215**	**401**	**148**

The earliest Large Fire occurred on July 13 and the latest was on September 16—both in 2007. In 2015, the Corner Creek Fire (29,660 acres south of Dayville) ignited on June 29—two weeks earlier than the fires examined from 2004 through 2011.

What are the Conditions that Promote Large Fire Development?

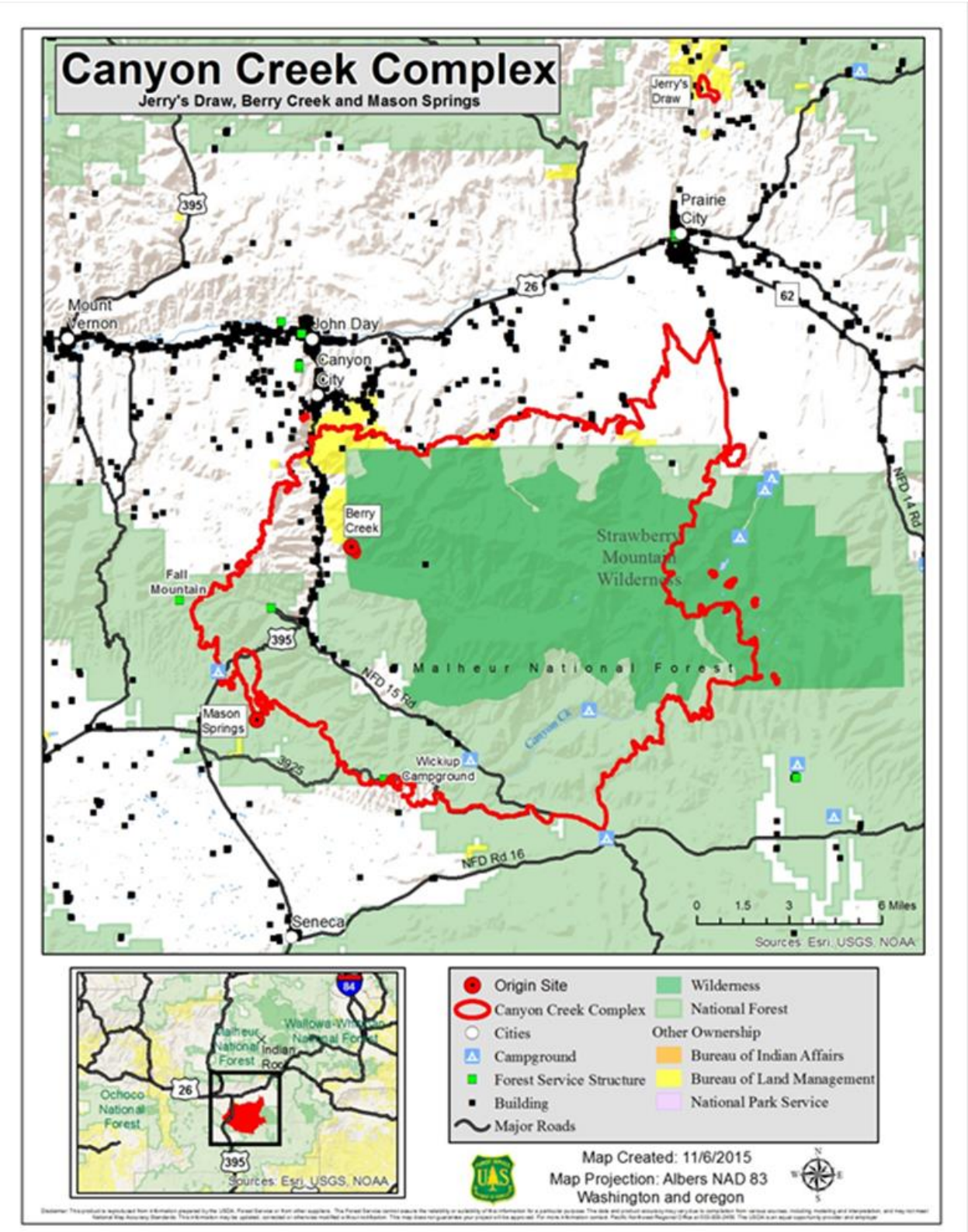
This 2004-2011 Predictive Services Analysis Report states: "High ERC values and prolonged drying is the best indicator of Large Fire growth."

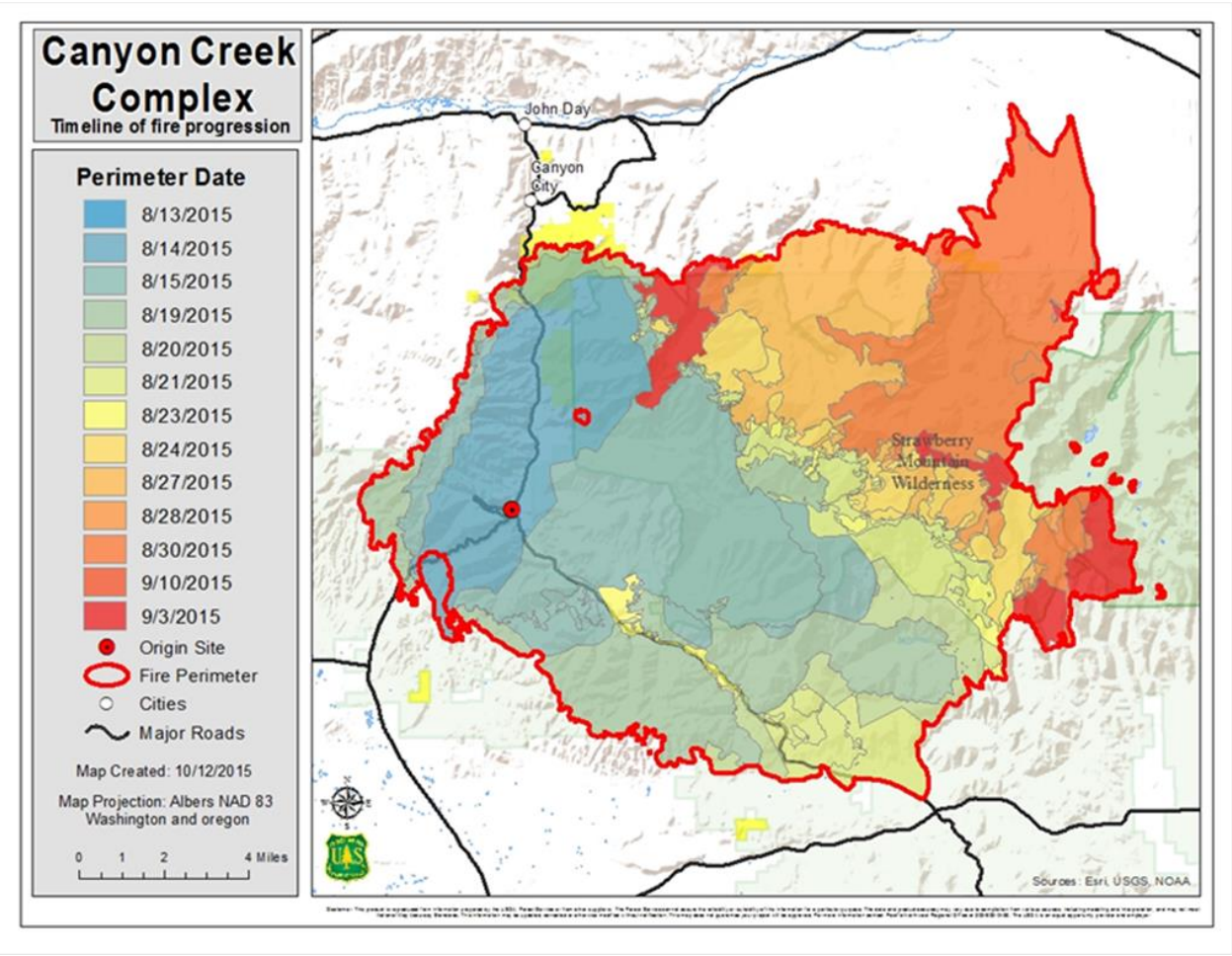
The Energy Release Component (ERC) is a measure of potential energy available to a fire and serves as an indicator of longer-term fuel dryness, especially large fuels and live fuels. The graph on right shows the ERC in Predictive Services Area NW11 (Blue Mountains) for 2015. This is the Canyon Creek Complex Fire area. Notice that from mid-June to early July—and again in August—the ERC was well above historical averages and the Large Fire threshold level.



Lightning

This analysis report continues: "Lightning episodes that produce Large Fires [in NW11] occur, on average, 2-3 times per year. There is a strong correlation between Large Fires and lightning amount in conjunction with fuel moisture. "The entire area was in a severe and prolonged drought."


Canyon Creek Complex
Jerry's Draw, Berry Creek and Mason Springs
Jerry's Draw
Prairie City
395
26
62
Mount Vernon
John Day
Canyon City
Berry Creek
Strawberry Mountain Wilderness
Fall Mountain
395
Malheur National Forest
NFD 15 Rd
Mason Springs
3975
Wickiup Campground
NFD Rd 16
Seneca
NFD 14 Rd
0 1.5 3 6 Miles
Sources: Esri, USGS, NOAA
Malheur National Forest
Ochoco National Forest
Indian Rock
26
395
84
Sources: Esri, USGS, NOAA
Origin Site
Canyon Creek Complex
Cities
Campground
Forest Service Structure
Building
Major Roads
Wilderness
National Forest
Other Ownership
Bureau of Indian Affairs
Bureau of Land Management
National Park Service
Map Created: 11/6/2015
Map Projection: Albers NAD 83
Washington and oregon


Canyon Creek Complex
Timeline of fire progression
Perimeter Date
8/13/2015
8/14/2015
8/15/2015
8/19/2015
8/20/2015
8/21/2015
8/23/2015
8/24/2015
8/27/2015
8/28/2015
8/30/2015
9/10/2015
9/3/2015
Origin Site
Fire Perimeter
Cities
Major Roads
Map Created: 10/12/2015
Map Projection: Albers NAD 83 Washington and oregon
0 1 2 4 Miles
John Day
Ganyon City
Strawberry Mountain Wilderness
Sources: Esri, USGS, NOAA

12 New Fire Starts

(Continued from Page 201)

By the afternoon of August 12, local firefighting resources have responded to 12 new fire starts across the Malheur National Forest—stretching from south of Seneca to Indian Rock, located on the Forest's north side.

The Mason Springs Fire, located north of the community of Seneca, and the Berry Creek Fire, located south of the town of John Day in the Strawberry Mountain Wilderness near private lands, are two of these 12 new fire starts that receive aggressive Initial Attack response.

Barrage of Aerial and Ground Resources Attack Fires

Immediate initial suppression response to the Berry Creek and Mason Springs fires include both aerial and ground resources:

- One Heavy Air Tanker
- Three Single Engine Air Tankers (SEATS),
- Two Helicopters with buckets,
- Smokejumpers,
- Rappellers,
- Three Engines,
- One 20-Person Hand Crew,
- One Dozer,
- Two Water Tenders.

This barrage of resources—immediately on scene—requires and receives a Type 4 Incident Commander.

Wednesday Aug. 12

10:06 a.m.

Expedited Approval Allows Chainsaws, Helicopters, and Air Tankers to Help Suppression Efforts Inside Strawberry Mountain Wilderness

At 10:06 a.m., smokejumpers confirm that the Berry Creek Fire is located within the Strawberry Mountain Wilderness Area. They request special permission to use chainsaws for fire suppression.

Twelve minutes later, the Malheur National Forest Supervisor has officially approved this use of chainsaws. Eight minutes later, aerial retardant use and helicopter water bucket drops are also approved to be used within the Wilderness area boundaries to help suppression efforts on the Berry Creek Fire.

11 a.m.

Air Tankers Working Both Fires

A total of three Single Engine Air Tankers are now dropping retardant on both the Berry Creek and Mason Springs fires.

At 11:12 a.m., a Heavy Air Tanker is supporting suppression efforts with retardant drops on the Berry Creek Fire.

2:06 p.m.

Mason Springs Fire Surrounded by Retardant and Dozer Line

The Mason Springs Fire is now completely surrounded by both retardant and dozer lines. A Helicopter with bucket is working to cool down the fire's interior.

Pacific Northwest and Nation at Second-Highest Severity Level

On August 12, both the Pacific Northwest Region and National fire Preparedness Levels are both at Level 4—the second highest severity level. In Oregon and Washington, 15 Large Fires (a wildfire of 100 acres or more in timber or 300 acres or more in grass/sage) are active with 5,947 firefighters assigned. Across the nation, 62 active Large Fires are burning with 20,747 firefighting resources assigned. The severe lightning storm that impacted the Malheur National Forest area, also establishes new fire starts throughout the region—creating an additional draw of firefighting resources.

A Very Large Air Tanker (VLAT) drops retardant in the Pine Creek drainage on August 26.
Photo by Traci Weaver, National Park Service.

5:41 p.m.

Helicopter Reassigned to Berry Creek Fire

At 5:41 p.m.—because the situation and status is looking good on the Mason Springs Fire—the Helicopter is reassigned to help with suppression efforts on the nearby Berry Creek Fire.

9:10 p.m.

Aggressive Fire Behavior Jumps Containment Lines;
Additional Resources and Type 3 Incident Management Team Ordered

A spot fire on the Berry Creek Fire flares up into the tree crowns and jumps the retardant and control lines. During this critical time—due to this aggressive fire behavior that exceeds established containment lines—all resources on the fire are forced to pull off. In addition, a firefighter suffering from heat exhaustion is transported by ground ambulance to a hospital.

Additional aircraft support is ordered for the following morning. The Type 4 Incident Commander also requests a Type 3 Incident Management Team to manage this escalating situation.

Canyon Mountain as seen from John Day at 6:15 p.m. on August 14.

Thursday Aug. 13

8:28 a.m.

Additional Resources Arrive;
Strong Winds Could Create Critical Fire Conditions

The National and Northwest Preparedness Level moves to 5—the highest severity level. Firefighting resources are scarce.

The National Weather Service forecast states: *"Fire weather watch for strong winds and low relative humidity Friday morning through Friday evening." "Hot and dry conditions expected again today." "The strong winds will create possible critical fire conditions and a Fire Weather Watch has been issued…"*

In the afternoon, winds are measured as high as 43 mph. The Berry Creek Fire, now estimated to be 50 acres in size, is actively burning on its west flank. The Mason Springs Fire is now approximately 10 acres in size.

Preparedness Level Upgraded to Most Severe Rating

Due to extreme fire activity that is depleting fire suppression resources in the Pacific Northwest, as well as throughout the West, on August 13 the National Preparedness Level is upgraded to the most severe rating: a Level 5.

Preparedness Level 5: *"Geographic Areas are experiencing major incidents which have the potential to exhaust all agency fire resources. Eighty percent of Type 1 and Type 2 Incident Management Teams and crews are committed, as well as the majority of other National Resources."*

Once the Type 3 Incident Management Team is ordered for the Berry Creek Fire, Oregon Department of Forestry resources respond. This immediate response includes: an Operations Section Chief, two Structure Protection Engines, one Dozer, and a five-person Hand Crew Squad.

10:30 a.m.

Air Tankers and Ground Crews Continue
Their Suppression Assignments

By 10:30 a.m., a Very Large Air Tanker (VLAT) and Single Engine Air Tankers (SEATs) are providing aerial support to the Berry Creek Fire.

In addition, hand crews continue with line construction on the Berry Creek Fire and are also reinforcing fire lines on the Mason Springs Fire.

2:04 p.m.

Resources Respond to Spot Fire on Mason Springs Fire;
the Type 3 IMT Now Managing Both Fires

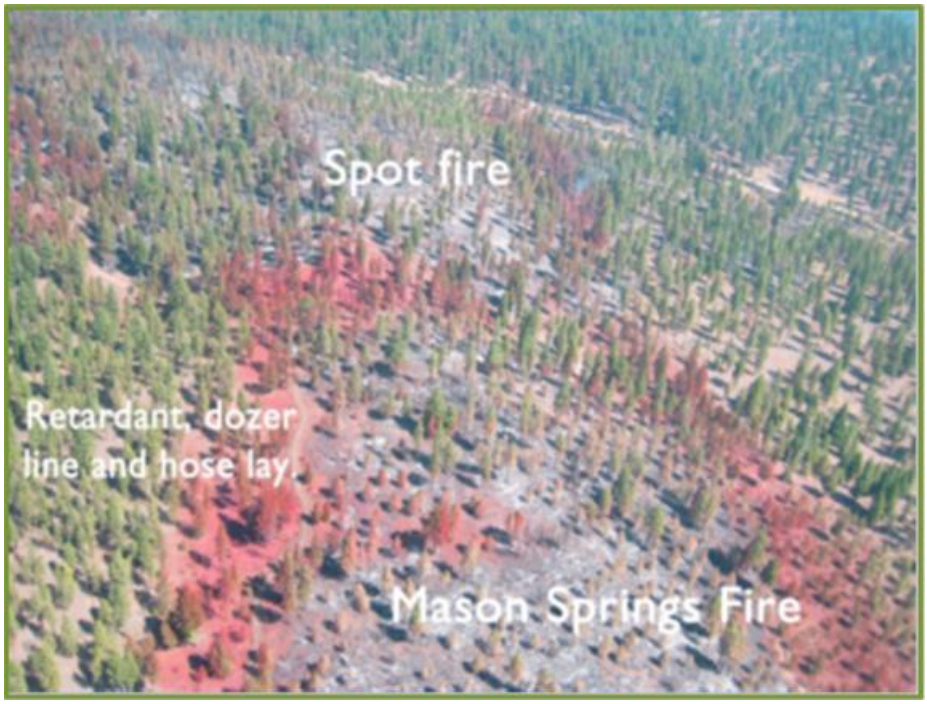
At 2:04 p.m. on the Mason Springs Fire, a spot fire is found 400 feet from the containment line. (See photo at top of next page.)

Thirty-six minutes later, a Helicopter equipped with a bucket is dropping water on this spot fire.

Within 24 minutes—at 3:04 p.m.—two Single Engine Air Tankers are also dropping retardant on this spot fire. One Dozer from John Day has also responded.

The determination is made that the local Type 3 Incident Management Team that has assumed command of the Berry Creek Fire will also be responsible for managing the Mason Springs Fire.

Air resources continue to be shared between these two fires.



5:32 p.m.

Extreme Fire Activity; Level 2 Evacuations Recommended;
Winds Push Mason Springs Fire to 500 acres; Fire Jumps Highway 395

The Dry Soda Lookout is now reporting winds with gusts up to 26 mph. Fire activity is becoming extreme. Eight minutes after this announcement, the fire lookout reports: *"Winds 5-10 mph out of the SSW with 85 degree temperature, and relative humidity 9 percent."*

The Berry Creek Fire is now 60 acres and the Mason Springs Fire is generating multiple spots that have moved across the ridge.

Level 2 Evacuations are recommended for residences in the Canyon Creek area.

(A "Level 2 Evacuation" order—as determined by the Oregon State Sheriffs' Association, Oregon State Fire Marshal's Office, Oregon Office of Emergency Management, Oregon Fire Chief's Association, and Oregon Department of Forestry—means *"BE SET"* to evacuate: *"YOU MUST PREPARE TO LEAVE AT A MOMENT'S NOTICE. This level indicates there is significant danger to your area and residents should either voluntarily relocate to a shelter or with family/friends outside of the affected area, or if choosing to remain, be ready to evacuate at a moment's notice."* Evacuation Level 1: *Be aware of the situation—BE READY*; Evacuation Level 3: *Evacuate immediately—GO*.)

"I believe we did everything we could with the resources we had available to put those two fires out. Sometimes Mother Nature has other plans."

Steve Beverlin, Forest Supervisor
Malheur National Forest
In the East Oregonian newspaper on Sept. 16

On August 13, a Very Large Air Tanker (DC-10 jet) helps suppression efforts with a retardant drop on what will become known as the Canyon Creek Complex.

The Grant County Sheriff is notified and deputies immediately respond. But, at the same time, the Mason Springs Fire is already moving very rapidly toward Highway 395.

By the end of the day, the Mason Springs Fire has escalated to 500 acres in size and jumps Highway 395—moving toward the residences in the Canyon Creek area. A Type 2 Incident Management Team is ordered to manage both fires.

Friday Aug. 14

10:35 a.m.

Fire Runs Down Canyon Creek;
Main Priority: Structure Protection;
Type 1 Incident Management Team Ordered

National Weather Service forecasters predict: *"Red Flag Warning in effect from noon today to 11 p.m. for strong winds and low relative humidity… A strong cold front bringing windy conditions to most of the forecast area…*

The Canyon Creek Complex Fire burns on Sugarloaf Peak west of Dry Soda Lookout on August 14. Photo by Dave Hannibal.

Firestorm moving down Canyon Creek along both sides of U.S. Highway 395 toward Canyon City. Photo by Grant County Undersheriff Todd McKinley.

Sudden wind shifts are possible with cold front passage."

By mid-morning, winds are from the south and southwest up to 30 mph—with 43 mph winds recorded in the afternoon.

That afternoon, the fire spreads down Canyon Creek and U.S. Highway 395 into Canyon City where more than 500 residences are threatened. A total of 39 residences are destroyed and 50 are damaged.

At this time, the State Fire Marshal arrives on the fire. A Type 1 Incident Management Team is ordered.

Level 3 Evacuations are ordered for Adams Drive, Dog Creek, Marysville, and Pine Creek.

The Red Cross establishes a shelter in Mt. Vernon. Highway 395 is closed.

A Joint Information Center is established at the Malheur National Forest main office.

V I D E O S

Three Videos

of Canyon Creek

Fire Column

https://drive.google.com/a/firenet.gov/folderview?id=0B4w6Si7DPJludTN6OHBFU1R3UnM&usp=sharing

Watch the column building and moving on August 14 as captured by a camera attached to the tower at the Grant County Regional Airport in John Day.

The Black Mesa Interagency Hotshot Crew burns out along roads to reduce fuels and increase the width of the fire control line. Photo by Traci Weaver, National Park Service.

Volunteer Firefighters Answer the Call

On August 14, Oregon Governor Kate Brown invokes the Emergency Conflagration Act which provides the State Fire Marshal the authority to request firefighting resources from cities, counties, and fire protection districts throughout Oregon.

The south/southwest winds have increased significantly, up to approximately 30 mph. Extreme fire behavior is exhibited throughout the day on both the Mason Springs and Berry Creek fires.

Fire managers and firefighters continue to do everything they can to stop both fires. These resources now include: Heavy Air Tankers, an additional 20-Person Hand Crew, and two additional Oregon Department of Forestry Division Supervisors.

The main priority on both fires is now Structure Protection.

12:02 p.m.

12 Engines with 32 Firefighters Respond

By 12:02 p.m., the City of John Day's Dispatch Office is notified. All Grant County fire departments are paged to respond. This response includes: 12 Engines and 32 Volunteer Firefighters.

Between noon and 1 p.m., the following fire departments are responding to help the Canyon City Fire Department: John Day, Dayville, Mt. Vernon, Prairie City, Monument, and Long Creek.

As these resources arrive, these structure fire responders are stationed starting at Mile Marker 7—the center of John Day—and are staggered north toward Canyon City.

12:45 p.m.

Structure Protection on South End of Fire

Around 12:45 p.m., the Mt. Vernon Fire Department Chief arrives with two Engines.

They are sent to the south end of the Mason Springs Fire for structure protection up Corral Gulch Road and the J-Bar-L Ranch, located just south of Canyon City.

Canyon Creek Fire photos by Grant County Undersheriff Todd McKinley.

"The mutual aid agreement with the ODF [Oregon Department of Forestry] that allows local fire departments to utilize U.S. Forest Service resources was invaluable. Without support from that helicopter, I believe that all of Canyon City would have been lost."

Matt Turner
Canyon City Fire Chief and Acting John Day Fire Chief

1:30 p.m.

500 Canyon City Residences Threatened; 39 Destroyed

Around 1:30 p.m., a spot fire at Eagle Peak prompts the Mt. Vernon Fire Chief to assign two Engines and one 20-Person Hand Crew. The Chief also requests a Helicopter with water bucket for air support.

Matt Turner, Canyon City Fire Chief and Acting John Day Fire Chief, believes that preplanning with a mutual aid agreement helped save Canyon City.

Chief Turner explains: *"The mutual aid agreement with the ODF [Oregon Department of Forestry] that allows local fire departments to utilize U.S. Forest Service resources was invaluable. Without support from that helicopter, I believe that all of Canyon City would have been lost."*

Despite these efforts, however, due to the extreme fire activity that occurs over the course of this afternoon, 39 residences are destroyed. The two fires burn together, representing an estimated total of 22,000 acres.

"We are saddened by this huge loss to the community," said Steve Beverlin, Forest Supervisor of the Malheur National Forest. "Our hearts go out to all the families and friends. When things like this happen to our neighbors and our community, it's a loss that everybody feels."

Seamless Coordination Between Different Agencies

"All of the firefighters who were on the fire that day feel terrible about the loss of homes. We all took that news very hard," assures Dave Hannibal, Base Manager with Grayback Forestry, a wildfire and emergency services contractor. "The seamless coordination between the different agencies all working as one was better than I have ever seen. The amount of radio traffic was fast-paced and professionally done. I was left very impressed by all of our local resources' quick actions."

"If we'd had 1,000 extra firefighters," Hannibal said, "we'd have only been more likely to have some serious injuries, or worse. The fire still would have claimed what it did. Our hearts go out to all who lost their homes in this fire."

11 p.m.

Around 11:00 p.m., local resources are released for the night.

"We are truly saddened by this event and the loss that the community has endured. Many have come forward to help and provide assistance. We are grateful for the incredible efforts made by the firefighters, as well as contributions from the community and the amazing support offered by the Red Cross and others who care.

The Forest Service is fully committed to moving forward with rehabilitation efforts that will contribute to the healing of the forest and, hopefully, the people."

Steve Beverlin, Forest Supervisor
Malheur National Forest

Saturday Aug. 15

The local Type 3 Incident Management Team is still in command. The priority for all firefighting efforts is to provide structure protection.

Forecasters predict light winds with mostly sunny skies, but smoky conditions with temperatures up to 84 degrees and relative humidity at 13-18 percent occur during this day.

Once again, extreme fire behavior is exhibited throughout the day.

The Engines and units from the Canyon City, John Day, Mt. Vernon, Prairie City and Long Creek fire departments return for patrol and standby duties.

At 8 p.m. that evening, these fire departments are released for local fire protection and response.

Dozer lines are advanced and strengthened south of Canyon City, with other resources focused on flanking the fire. A helitorch burning operation was planned, but cancelled due to the inversion.

Level 3 Evacuations are in effect for Dog Creek, Marysville South, Pine Creek, Canyon Creek, and Edgewood Drive.

Level 2 Evacuations are in effect for Laycock Creek, Nans Rock Road, Marysville North, Adams Drive, and West Bench Road.

An emergency closure is issued for the Strawberry Mountain Wilderness.

An infrared flight overnight determined that the fire had grown to 34,000 acres the previous day.

Nothing Left

"Nationally, there are no more trained fire crews in the system that are shown as available. That's true of Air Tankers and Engines as well."

Koshare Eagle, Spokesperson
Northwest Coordination Center,
speaking to Oregon Public Broadcasting on August 15

Sunday Aug. 16

6 a.m.

Type 1 Incident Management Team and State Fire Marshal Team Assumes Unified Command

This is another day of sunny and smoky skies with winds less than 5 mph and temperatures of 83 degrees, with humidity at 15 percent with good recovery overnight.

The fire has grown to 37,119 acres. The Canyon Creek Complex is now the highest priority fire in the nation. (It will maintain that distinction for a total of 12 days.) Resources are increasing on the fire with: 493 Personnel, 10 Crews, and 35 Engines. (Dozers, Water Tenders, and Air Tankers are not reported in daily 209 Situation Reports.)

The fire is transferred to a Type 1 Incident Management Team, the Great Basin Team #1. (Dispatchers diverted this team to the Canyon Creek Complex when it was enroute to another Large Fire assignment in Washington.) A Unified Command was established with the Oregon State Fire Marshal Red Team and Oregon Department of Forestry.

Over the next four days, due to dry fuels and difficult terrain, the fire grows an average of 6,500 acres each day—moving to the east/southeast.

Monday Aug. 17

Nationally, fire managers are now assigned to 105 Large Fires. Thirty-five of these fires are located in Oregon and Washington. At this time, the Canyon Creek Complex has burned 40,132 acres.

The weather today is similar to yesterday. Winds are forecasted to be from the northwest at 3-7 mph. Temperatures are 85 degrees with relative humidity at 8-13 percent.

The terrain is limiting the use of Dozers. Crews are being supported by Helicopters. Fire activity increased today on the south flank near Dry Soda Lookout. Crews worked through the night strengthening fire lines and implementing structure protection measures on the fire's north flank. Aircraft continue to be used aggressively.

Two community meetings are held at the high school for those who lost their homes. Another meeting is held for the general public.

Level 3 Evacuation orders—"*Evacuate immediately: GO"*—are in effect for Dog Creek south of Marysville, Marysville South, Pine Creek-Gravel Pit South, Canyon Creek, and Edgewood Drive.

An Engine works along Canyon Creek Road on August 18. The southern end of the fire, including the vicinity of the Wickiup Campground and Forest Road 3925, is a priority today for limiting fire growth and protecting structures. Photo by Lori Iverson, U.S. Fish and Wildlife Service.

Level 2 Evacuation orders—*"BE SET: YOU MUST PREPARE TO LEAVE AT A MOMENT'S NOTICE"*—are in effect for Laycock Creek, Adams Drive, Nans Rock Road, West Bench Road, Luce Creek Marysville North, Pine Creek–Gravel Pit, North Dog Creek North of Marysville

Tuesday Aug. 18

Once again, the weather is similar to the previous day with winds out of the north to 6 mph with a light inversion layer in the morning hours. With winds from the north, the focus is on the fire's southern flank.

Several homes are saved due to the direct action by fire crews in the Canyon Creek area.

Evacuation Levels were upgraded from a 1 to a 2 in the following areas: Adam, Eagle Peak, Pineview, Edgewood, Marysville, Gardner Ranch, Buckhorn, and Little Pine.

The fire is burning actively in Vance Creek.

Wednesday Aug. 19

Firefighters concentrate efforts to check fire expansion and protect houses and private lands. Priority areas are identified around the Wickiup Campground and Forest Road 3925 areas on the fire's south side as well as the Fall Mountain area to the west.

Oregon Governor Kate Brown meets with firefighters in the afternoon and announces that the Oregon National Guard is being called-up to help.

The upper end of Pine Creek from the road closure near the rock pit remains under a Level 3 Evacuation.

Thursday Aug. 20

A Red Flag Warning is issued for gusty westerly winds and low humidity from noon until the next day at 11 p.m.

Successful Initial Attack on New Fire

At 4:45 p.m. on August 20, air and ground resources respond to a new fire, the Jerry's Draw Fire. This fire started near the community of Prairie City, located northeast of the Canyon Creek Complex. Due to aggressive Initial Attack, the fire is successfully contained at 161 acres.

On August 20, a large smoke column generated from active fire behavior in the southeast portion of the Canyon Creek Complex was visible throughout the area.

On the Canyon Creek Complex, fire activity is greatest—driven by the west winds—on the southeast portion of the fire. The fire remains north of Highway 16. Fire managers expect the fire to slow when it reaches the 2012 Parrish Cabin Fire footpint—due to reduced fuels in that area.

Firefighters prepped structures and identified water sources in and around the Lake Creek Organization Camp.

The fire is now 53,900 acres. Resources on the fire: 939 Personnel, 24 Crews, 66 Engines, and 4 Helicopters.

Friday Aug. 21

The Red Flag Warning for gusty west winds and low humidity from yesterday remains in effect until 11 p.m. today. The fire has grown approximately 8,000 acres from the previous day.

The Level 1 Evacuation alert is lifted for the Seneca area, as well as other areas. However, the area around the Jerry's Draw Fire is under Level 1 and 2 Evacuation notices.

The fire laid down as it encountered the area of the 2012 Parrish Cabin Fire. Firefighters utilized existing roads and burned out fuels to strengthen lines and slow the main fire's progress. They kept the fire west of Forest Road 1530 near Parrish Cabin and expect to connect to existing fire lines along Forest Road 15 in the evening.

The southeastern corner of the fire is once again the suppression priority with the gusty winds from the west.

The eastern flank of the fire continues to burn into the Strawberry Mountain Wilderness and remains largely unstaffed.

The fire's northern flank is prepared with structure protection and contingency lines—should they be needed.

The fire's west and southwest flanks are in mop-up status. Crews here have been gridding for hotspots to strengthen fire lines. U.S. Highway 395 remains closed to traffic.

Saturday Aug. 22

Today, weather forecasters from the National Weather Service, Pendleton Office noted: *"An upper level trough will be offshore Sunday through most of next week. This will result in a southwest flow aloft. This change in wind direction may impact fires at the mid and higher elevations and will direct smoke back to a northerly direction."*

Firefighters completed a line around the Jerry's Draw Fire and several spot fires. No structures were lost.

In spite of the forecast, fire activity is limited to creeping, smoldering, and some individual and group tree torching. The Canyon Creek Complex is currently estimated at 68,545 acres with approximately 832 personnel assigned to this incident.

Firefighters make excellent progress on the Canyon Creek and Jerry's Draw fires today by taking advantage of the change in weather, which brought cooler temperatures and reduced winds throughout the area.

Crews continue to patrol and secure hand and dozer lines and mop-up along the fire's western and northern perimeters. Structure protection is in place near the fire's northeastern flank and firefighters continue to watch that area closely.

Sunday Aug. 23

There is a Red Flag Warning in effect until 9 p.m. Monday. Warm, dry, unstable conditions will likely cause increased activity on existing fires. As this weather influence moves off to the east on Monday, an increase in westerly surface winds is expected.

U.S. Highway 395 opened to traffic from 9 a.m. to 5 p.m. with a pilot car providing an escort for vehicles.

Burn out operations on the fire's southeast corner are successful and tied the fire into the wilderness. Successful containment also continues on the north and northwest fire perimeters. Crews secure hand lines to Mud Springs. Despite smoky conditions, night operations continue.

Monday Aug. 24

Red Flag Warnings remain in effect until 9 p.m. this evening for warm, dry and unstable conditions with a Haines Index of 5.

The fire's highest suppression priority is now its northeast portion. Firefighters are pre-positioned along the fire's northern section and inside the residential areas of Upper Pine Creek and Upper Dog Creek. They spend the day patrolling, improving and holding contingency lines and closely monitoring these areas.

Fire size is estimated at 73,210 acres, 29 percent contained, with 665 personnel assigned.

An advance party for the Oregon National Guard arrives and coordinates with the Great Basin Incident Management Team to ensure a smooth and efficient integration of military personnel into suppression efforts.

Prairie City receives steady smoke throughout the day. Areas south and west of the fire had less smoke.

Tuesday Aug. 25

The weather today is moderate with temperatures in the 80s and winds less than 8 mph. But, as indicated in the quote below, there is clear direction on anticipated resource needs on the northeastern section of line:

"Operations shifted pre-identified resources to the Pine Creek area from areas of the fire with less activity in order to bolster suppression capabilities. Operations established a staging area for those resources to be poised along contingency lines for structure protection. Sunday's significant fire run that progressed into the Norton Fork drainage stalled after reaching the Bear Skull Ridge area, which allowed Hotshots to improve indirect contingency lines toward Dog Creek. This is our highest priority area."

Taken from Inciweb: Canyon Creek Complex Morning Fact Sheet for Tuesday, August 25

The Office of State Fire Marshal redeployed two Task Forces (10 Engines) from Umatilla and Deschutes counties to provide structural protection near John Day.

These Task Forces are managed by a limited Incident Management Team. Crews are prepared to remain on scene until the structural threat is mitigated.

An Air Attack plane monitors the Canyon Creek Complex's progress in the Pine Creek community area on August 26. Photo by Lori Iverson, U.S. Fish and Wildlife Service.

Wednesday Aug. 26

While there are no "official" watches or warnings for today, the forecast calls for: *"Southwest transport winds to 20 mph"*. Indian and Pine Creek drainages are affected. By the afternoon, long-range spotting is occurring. Ten Air Tankers are supporting Ground Crews, Engines, and Dozers.

Firefighters successfully stop the fire spread from reaching Prairie City.

From the "Canyon Creek Complex Evening Update for Wed. Aug. 26":

"In anticipation of today's conditions—high winds, low humidity, and high temperatures—firefighters focused their efforts on the northeast corner of the fire. Firefighters remained stationed in strategic locations along the northern section of the fire and in the residential areas of Upper Pine Creek and Upper Dog Creek. They spent the day improving and connecting contingency lines and monitoring the area closely."

Late afternoon winds, along with dry conditions, caused long-range spotting north of Indian Creek. The fire moved down Pine Creek, triggering evacuations. Resources responded quickly and additional aircraft arrived on scene.

Fire activity also became very active in the Indian Creek Butte area, adding to the large smoke column that appeared in the afternoon. Another large column is anticipated tomorrow. No burn out operations are conducted today.

After the fire made a push to the north/northeast, the following areas were raised to a Level 3 Evacuation: Upper Pine Creek, Upper Dog Creek south of Little Dog Creek, and Gardiner Ranch Lane. Lower Dog Creek, Lower Pine, and Lower Indian Creek are in a Level 2 Evacuation status.

Tonight, night crews will continue suppression activities in the northeast area of the fire.

Troops from the Oregon National Guard arrived today and will begin supporting the fire suppression efforts tomorrow. The Guard is stationed at the Lake Creek Organizational Camp.

The 165-acre Jerry's Draw Fire is 100 percent contained and will be in a patrol status-only tomorrow. Resources are reassigned to assist with suppression activities on the northeast corner of the Canyon Creek Complex.

On August 26, the Canyon Creek Complex grows an additional 11,000 acres.

Thursday Aug. 27

From the "Canyon Creek Complex Evening Update for Thursday Aug. 27":

Hot, Dry Weather and Winds Increase Fire Activity, Similar Conditions Today

Current Size: 85,960 acres

Percent Containment: 44%

Number of Personnel: 715

Types of resources: 2 Type 1 Crews, 8 Type 2 Crews, 7 Helicopters, 67 Engines, 14 Dozers, 21 Water Tenders, 11 Skidgines

Canyon Creek Complex Recent Activities:

Canyon Creek

- Afternoon winds coupled with hot and dry conditions fanned the eastern portion down from Norton Fork to Pine Creek, triggering evacuations. Five Heavy Air Tankers responded quickly and dropped seven to ten loads of retardant near residential areas. The initial large column of

smoke, which was visible from John Day and Prairie City, was generated by heavy fire activity and long-range spotting north of Indian Creek Butte and then moving down into Pine Creek. Later, southwest winds in the valley pushed the fire around the slope to the east and toward Indian Creek. Weather conditions kept the fire very active into the night and early morning, when it finally moderated.

- The small communities of Upper Pine Creek, Gardner Ranch Lane, and Upper Dog Creek south of Little Dog Creek were raised to a Level 3 Evacuation. Lower Pine Creek and Dog Creek are in a Level 2 Evacuation.
- In anticipation of the unstable conditions, firefighters were pre-positioned in strategic locations along the northern section of the fire and in the residential areas of Upper Pine Creek and Upper Dog Creek. They spent the day improving and connecting contingency lines and monitoring the area closely. In the early evening—when work conditions were safe—they provided critical structure protection needs.
- Southwest winds along the western and southern fire perimeter the last several days enabled firefighters to locate and extinguish hot spots. That hard work resulted in 44 percent containment and more control lines along the southern and western sides of the fire.
- Night operations worked to secure the fire line and structures on the northeast flank of the fire.

Jerry's Draw Fire

This fire, now 100 percent contained, is in patrol status. It has been turned back over to the responsible agency, the Oregon Department of Forestry.

Planned Actions Include:

Canyon Creek

- The fire will be tested again today due to a local Red Flag Warning for hot and dry conditions and southwest winds up to 20 mph and an unstable air mass. Anticipate smoke columns and active fire movement.
- Fire managers intend to be flexible and strategic, using the right resources at the right time and in the right locations.
- Crews will continue to improve and hold dozer and hand lines along the Malheur National Forest's northern border and provide protection to residences.
- Air Tankers will be used as soon as possible to pre-treat structures in the Indian Creek area. Air Tankers will also apply retardant along dozer lines for reinforcement in the Dog Creek area.
- Crews will do fire suppression repair on the western side of the fire, rehabilitating dozer lines, fixing fences, and building water bars to reduce erosion.
- The Oregon Trails Electric Coop continues to restore power to residences along Highway 395.

From the Evening Briefing:

"The Oregon Fire Marshal's Team returned with five Task Forces (50 Engines total) to assist with structural protection. Firefighters and other resources worked throughout the day constructing fire line to protect structures in the Upper Pine Creek and Indian Creek areas."

Friday Aug. 28

Fire managers brace for strong winds forecast for the next day. Fire activity in the Road's End area causes the fire to spot into the Lake Creek drainage near Indian Butte. Firefighters conduct small burn out operations to hold the fire's eastern flank.

Level 3 Evacuations are in place at the following locations:

- Upper Pine Creek from Berry Ranch Lane and Dean Creek/Baldy Mountain.
- Upper Indian Creek Road from the "Y" south (including both Forest Roads 55 and 71).
- Upper Dog Creek, south of Little Dog Creek.
- The area west of County Road 62, south of the Forest boundary (MP 12) and north of Forest Road 16 to the junction of Forest Road 15/16. County Road 62 and Forest Road 16 are open at this time.

Saturday Aug. 29

The forecast released today indicates: *"Red Flag Warning in effect until 7 p.m. Valleys and lower slopes: southwest winds 12 to 18 mph with gusts up to 35 mph (20-foot winds). Transport winds southwest 10 to 35 mph increasing to 25 to 45 mph in the afternoon."*

Excerpt from the article "Trial by Fire" by Sean Ellis and Nancy McCarthy that appeared in the *Blue Mountain Eagle* newspaper on Sept 2, 2015:

> *"Southwest winds began to pick up at 2:30 a.m., pushing the Canyon Creek Fire toward Prairie City. By 5 a.m. resources were rushing toward Prairie City—11 Dozers, Water Tenders and Engines, 3 Hotshot and 6 other Hand Crews. Mutual aid sirens went off in adjacent communities. By 5:30 a.m. the fire was in the grass of the valley. Mandatory evacuations for residences and ranches south of U.S. Highway 26 were ordered. An evacuation center was established in Mt. Vernon. The advancing fire was stopped by 10 a.m. about 1.5 miles from Prairie City. The evacuation order was lifted by 4 p.m."*

Sunday August 30 through Saturday September 5

The weather turned favorable over the next week with cooler temperatures and higher relative humidity. Scattered showers began on September 2 with a wetting rain on September 5.

Ultimately, the fire would grow another 9,000 acres to a final size of 110,422 acres. About 91,000 acres were on U.S. Forest Service lands with another 17,000 acres of private lands burned. The fire burned approximately 48,000 acres in the Strawberry Mountain Wilderness Area.

The Great Basin Type 1 Incident Management Team transferred command to a Type 2 Team on September 5.

Canyon Creek Complex Resources by Day

This table provides a daily glimpse of fire growth, resources on the fire, and any critical fire weather forecasts from the National Weather Service. The greatest number of a resource (during the course of the fire) is highlighted in green.

Date	Active Large Fires NWCC	Committed Fire Teams In NWCC Type 1 & 2	Total Burned Acres*	Percent CTN*	People	Crews	Engines	Heli-copters	Critical Fire Weather
Aug. 13	18	5 (T1) & 7 (T2)	500+	0	82	1	14	0	Strong Winds Critical Fire Conditions
Aug. 14	24	6 (T1) & 10 (T2)	22,100	0	225	5	28	1	Red Flag Warning: Strong Winds (40+)
Aug. 15	33	6 (T1) & 10 (T2)	34,100	0	225	5	28	1	
Aug. 16	30	6 (T1) & 10 (T2)	37,119	0	493	10	35	1	
Aug. 17	35	7 (T1) & 12 (T2)	40,132	0	561	13	61	3	
Aug. 18	34	8 (T1) & 11 (T2)	43,738	0	649	15	73	6	
Aug. 19	33	8 (T1) & 11 (T2)	48,201	10	915	21	82	3	
Aug. 20	30	8 (T1) & 12 (T2)	53,900	13	939	24	66	4	Red Flag Warning: Gusty Winds Low RH
Aug. 21	31	7 (T1) & 13 (T2)	61,792	17	902	23	64	4	Red Flag Warning: Gusty Winds Low RH
Aug. 22	30	7 (T1) & 13 (T2)	68,545	23	832	20	56	4	SW flow may impact fires on mid and higher slopes
Aug. 23	34	7 (T1) & 13 (T2)	69,771	29	665	12	53	4	Red Flag Warning: Warm, Dry, Unstable Air, Wind
Aug. 24	32	6 (T1) & 13 (T2)	73,060	37	707	15	59	4	Red Flag Warning: Dry, Unstable Air – SW Wind
Aug. 25	32	8 (T1) & 13 (T2)	74,649	42	699	9	70	4	
Aug. 26	32	6 (T1) & 10 (T2)	85,960	44	715	10	67	7	
Aug. 27	32	6 (T1) & 11 (T2)	86,199	44	759	14	67	9	
Aug. 28	31	6 (T1) & 11 (T2)	87,145	44	853	16	74	9	
Aug. 29	31	5 (T1) & 10 (T2)	101,465	49	952	18	82	5	Red Flag Warning: SW45,Cold Front
Aug. 30	28	5 (T1) & 11 (T2)	104,741	49	1,026	23	69	5	Isolated showers with wind, cooler
Aug.31	28	5 (T1) & 9 (T2)	105,171	49	966	23	54	5	
Sep. 1	26	5 (T1) & 7 (T2)	105,684	52	1,014	25	54	5	
Sep. 2	26	5 (T1) & 5 (T2)	105,684	57	1,016	25	42	5	Cooler, higher RHs
Sep. 3	23	5 (T1) & 4 (T2)	109,876	66	951	25	38	5	
Sep. 4	21	5 (T1) & 5 (T2)	110,383	83	964	26	36	5	50% chance of showers
Sep. 5	21	5 (T1) & 5 (T2)	110,383	83	761	18	39	5	Wetting rains

Data sources: daily Situation Reports (209), National Weather Service forecasts, fire progression maps, and daily briefings.

*"Total Burned Acres" was derived mostly from 209 reports rather than the fire progression map.

*"Percent CTN" is Percent Contained.

Key Dates on the Canyon Creek Complex

August 12– Berry Creek and Mason Springs fires start; Type 4 Incident Commander assigned.

August 13 – Type 3 Incident Commander assigned.

August 14 – Strong southerly winds push fire down Canyon Creek toward Canyon City.

August 15 – The local Type 3 IMT still has command of the fire.

August 16 – Great Basin Type 1 Incident Management Team takes command.

September 5 – Rain arrives.

September 6 – Oregon Type 2 Incident Management Team takes command.

September 9 – Transfer of command back to Malheur National Forest.

Firing operations on the Canyon Creek Complex included protecting a strategic powerline on the fire's west side to avoid damage and interruptions to service.

Photo by Gert Zoutendijk, Oregon State Fire Marshal's Office.

Appendix O – County Line 2 Fire

For Interactive Map: http://arcg.is/1QqdeQ7

County Line 2 Fire

Ignition Date
August 12, 2015

Cause
Under Investigation

Land Ownership at Fire Origin
Warm Springs Agency

Responding Initial Attack Resources
One Type 2 Crew, Six Engines, Two Dozers

Preparedness Level at Time of Ignition
National: PL 4
Local: PL 4

Acres Burned
67,207 acres (as of Oct. 19, 2015)

Estimated Cost
$16,700,000 (as of Oct. 19, 2015)

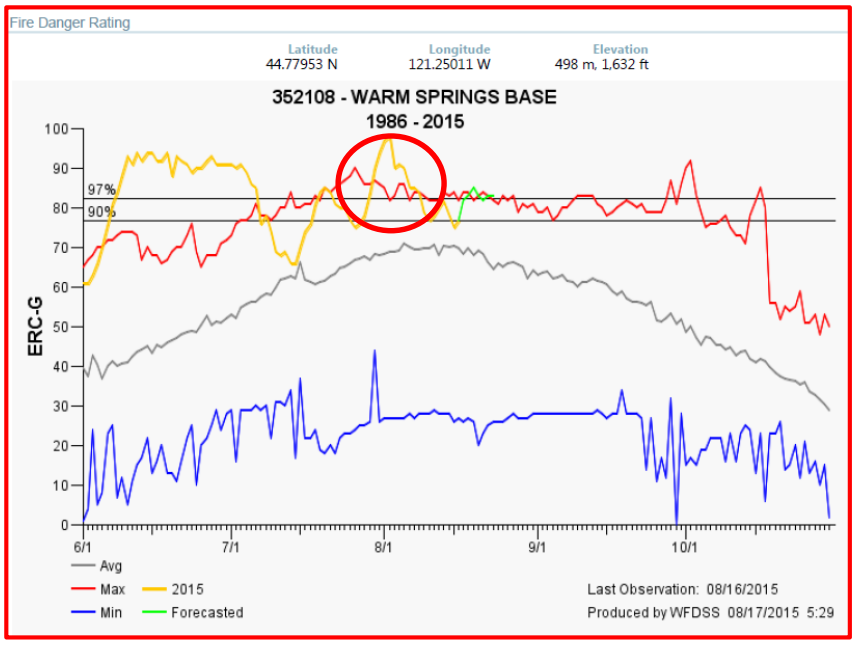
Land Jurisdictions
Warm Springs Agency

Resources at Incident Peak
Total Personnel: 604
Crews: 17
Engines: 18
Helicopters: 3

Structures Destroyed
7

Cooperators
Warm Springs Fire and Safety Rural, Bureau of Indian Affairs, National Park Service, Bureau of Land Management, U.S. Fish and Wildlife Service, State of Oregon Fire Marshal's Office, Oregon Department of Transportation

Sparks from a Vehicle Ignite Seven Fires that become the County Line 2 Fire

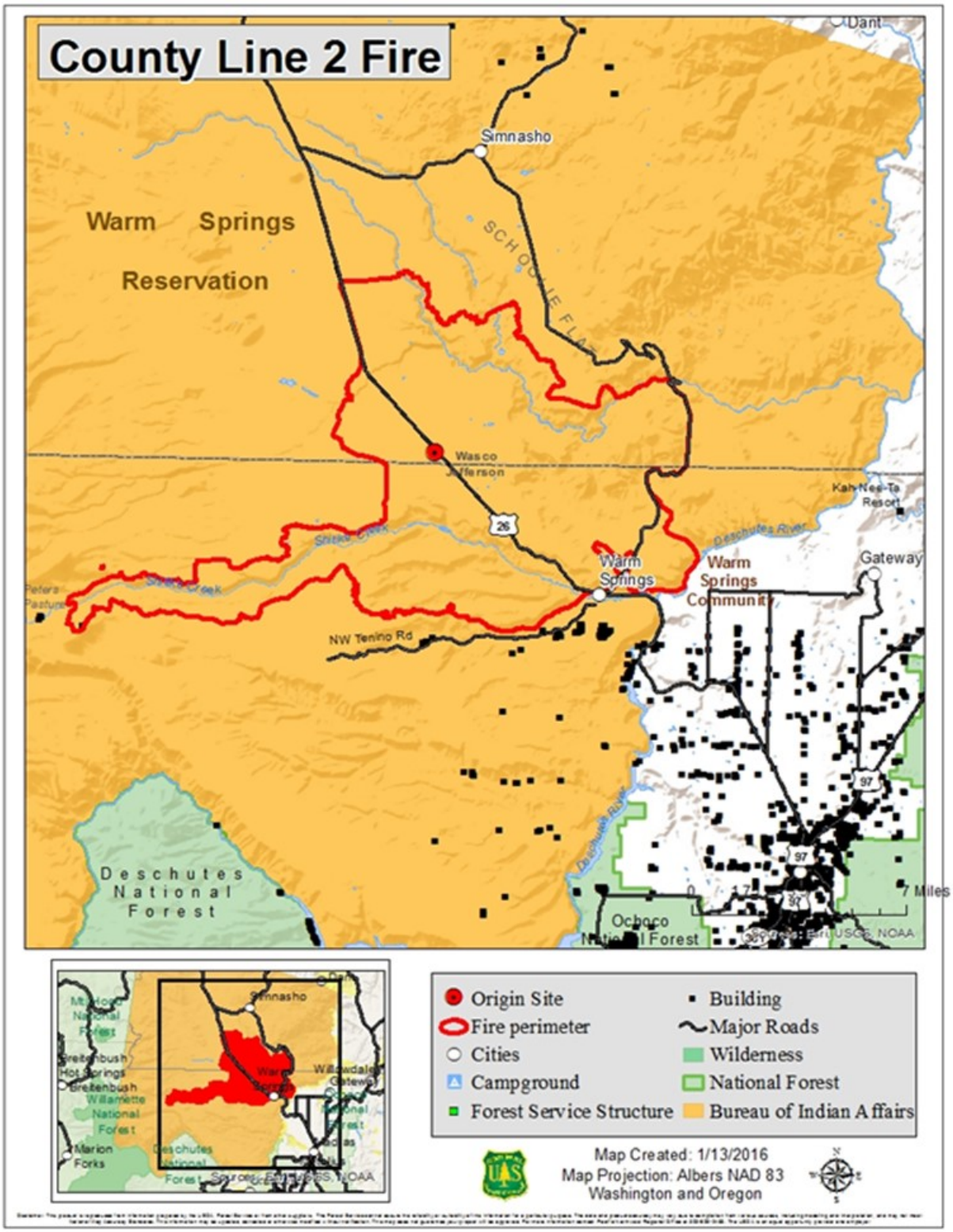


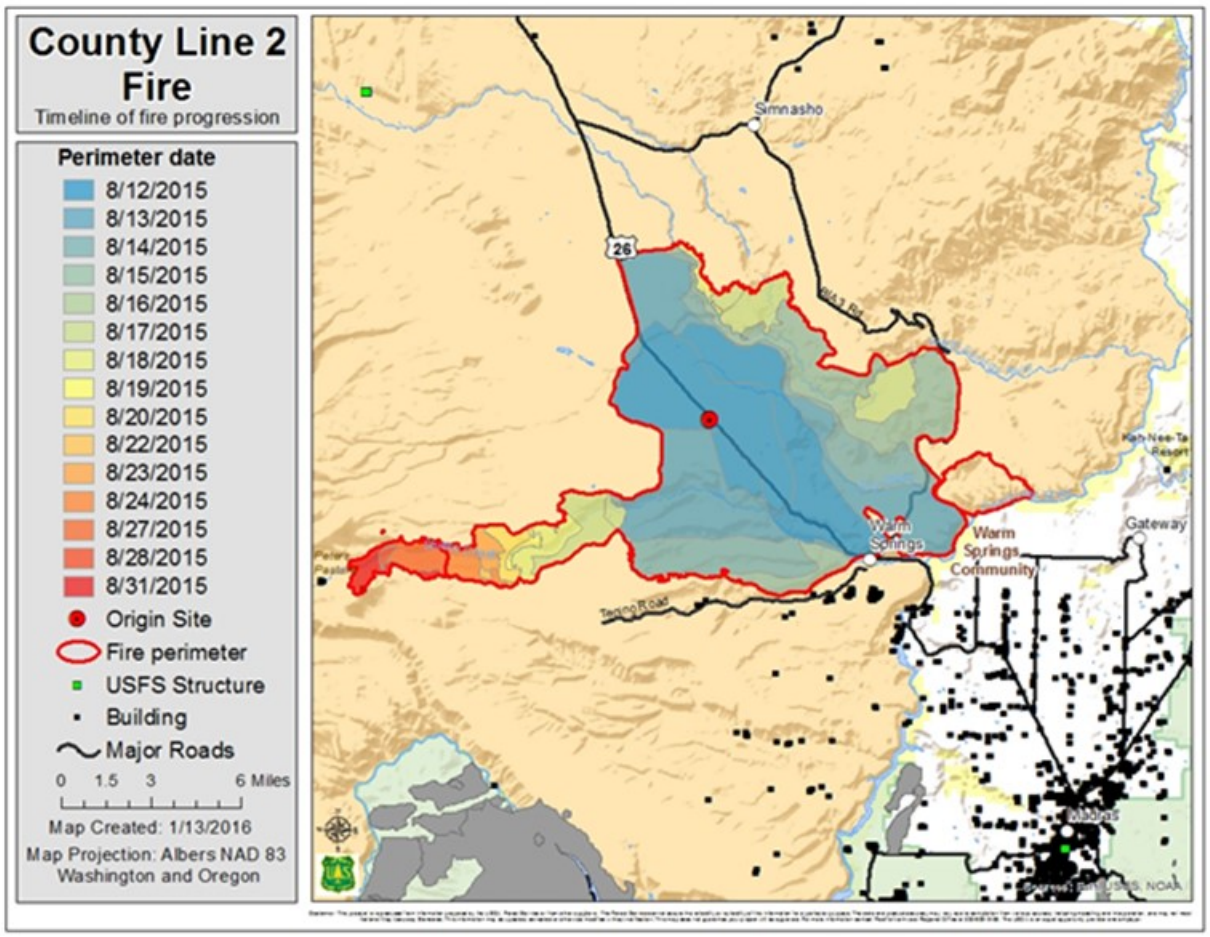
This graph from the Warm Springs Base Remote Automated Weather Station (RAWS) shows how the Energy Release Component (ERC)—a measurement of fire danger indices—is at near historic high levels when the County Line 2 Fire ignites.

The County Line 2 Fire started on August 12, 2015 at approximately 1:36 p.m. The cause of the fire is under investigation. News reports indicate that a vehicle in tow on Oregon State Highway 26 produced sparks from either the tow chain or the vehicle had lost a tire and its rim was sparking on the asphalt.

Before this vehicle can be stopped, this mishap ignites seven fires along Highway 26—causing the closure of this primary travel route between Portland and Bend, Oregon.

The County Line 2 Fire grows rapidly through light flashy fuels under the influence of strong winds. During Initial Attack on the fire, winds recorded at the nearby Warm Springs Base Remote Automated Weather Station (RAWS) are between 8 and 13 mph—with gusts up to 22 mph. Prior to these fire ignitions, fire danger measured by the Energy Release Component (ERC) for the local area had been at or near historic high levels for early August (see graph at top of this page).


County Line 2 Fire
Dant
Simnasho
Warm Springs Reservation
Wasco
Jefferson
Kah-Nee-Ta Resort
Shitike Creek
Deschutes River
Warm Springs
Warm Springs Community
Gateway
NW Tenino Rd
Deschutes National Forest
Ochoco National Forest
0 3.5 7 Miles
Origin Site
Fire perimeter
Cities
Campground
Forest Service Structure
Building
Major Roads
Wilderness
National Forest
Bureau of Indian Affairs
Map Created: 1/13/2016
Map Projection: Albers NAD 83
Washington and Oregon



Dry Fuels and Winds Push the Fire Beyond Initial Attack Capabilities
While Initial Attack resources quickly respond to these multi-fire starts, wind pushes the fire in extremely dry fuels beyond Initial Attack suppression capabilities. Rates of fire spread are reported as great as 2.5 miles per hour.

The initial Incident Status Summary report ICS 209 indicates the following resources were assigned to this fire: 1 Type 2 Crew, 6 Engines, and 2 Dozers. Severity firefighting resources which had been sent to the Cougar Creek Fire in Washington State are recalled by the Warm Springs Agency.

During Initial Attack, two unoccupied homes are destroyed as the fire spreads on both sides of Highway 26. Later that evening, the highway is reopened. However, a Level 1 Evacuation notice (*"Be aware of the situation: BE READY*") remains in effect for the many scattered homes located north of the community of Warm Springs.

By late that first evening, the County Line 2 Fire size is estimated at 9,000 acres.

Governor Invokes the Emergency Conflagration Act
At 6 p.m., an order is placed for the Type 2 Oregon Interagency Incident Management Team #1. In addition, the Warm Springs Agency requests state assistance due to all local firefighting resources having been committed and the proximity of the fire to the Warm Springs community and rural residents. (The Warm Springs community had a population of 2,945 in the 2010 U.S. Census.)

Oregon Governor Kate Brown invokes the Emergency Conflagration Act which allows state officials to send an Oregon State Fire Marshal Team and several Engine Strike Teams to the County Line 2 Fire. The Oregon State Fire Marshal Team will eventually enter into a Unified Command with the Oregon Interagency Incident Management Team #1.

On August 13, tactical efforts on the County Line 2 Fire focus on burning out from and holding existing roads as well as building direct fire line with Dozers. Photo by Sam Swetland.

August 13

Strong Winds and Low Humidity Push the Fire to 35,000 Acres

On August 13, the County Line 2 Fire's second day, Extended Attack operations continue. The fire is expanding in all directions.

Driven by strong winds, the fire continues to grow rapidly. The National Weather Service issues a Red Flag Warning for these strong winds and low humidity through August 15. Between 3-6 p.m. on August 13, the Warm Springs Base RAWS records average winds at 12-18 mph, gusting to 29 mph.

The evening ICS 209 estimates the fire size at 35,000 acres.

A total of 75 overhead and fire line personnel from the Oregon Fire Marshal's two Task Forces—with approximately 10 Structure Engines—arrive and augment a small Extended Attack force consisting of 5 Crews, 10 Engines, and 3 Dozers.

Fire Spread Requires the Widespread Evacuation of Residents and the Kah-Nee-Ta Resort

Tactical efforts are focused on burning and holding existing roads as well as building direct fire line with Dozers. Engines are primarily assigned to protect residences in the communities of Miller Heights, Warm Springs, Sunnyside, Upper Dry Creek, and along Tenino Road. Level 3 Evacuations ("EVACUATE IMMEDIATELY*: GO"*) are issued for the Kah-Nee-Ta High Desert Resort and Casino, Tenino Road, Wolf Point Subdivision, and Schoolie Flat residences.

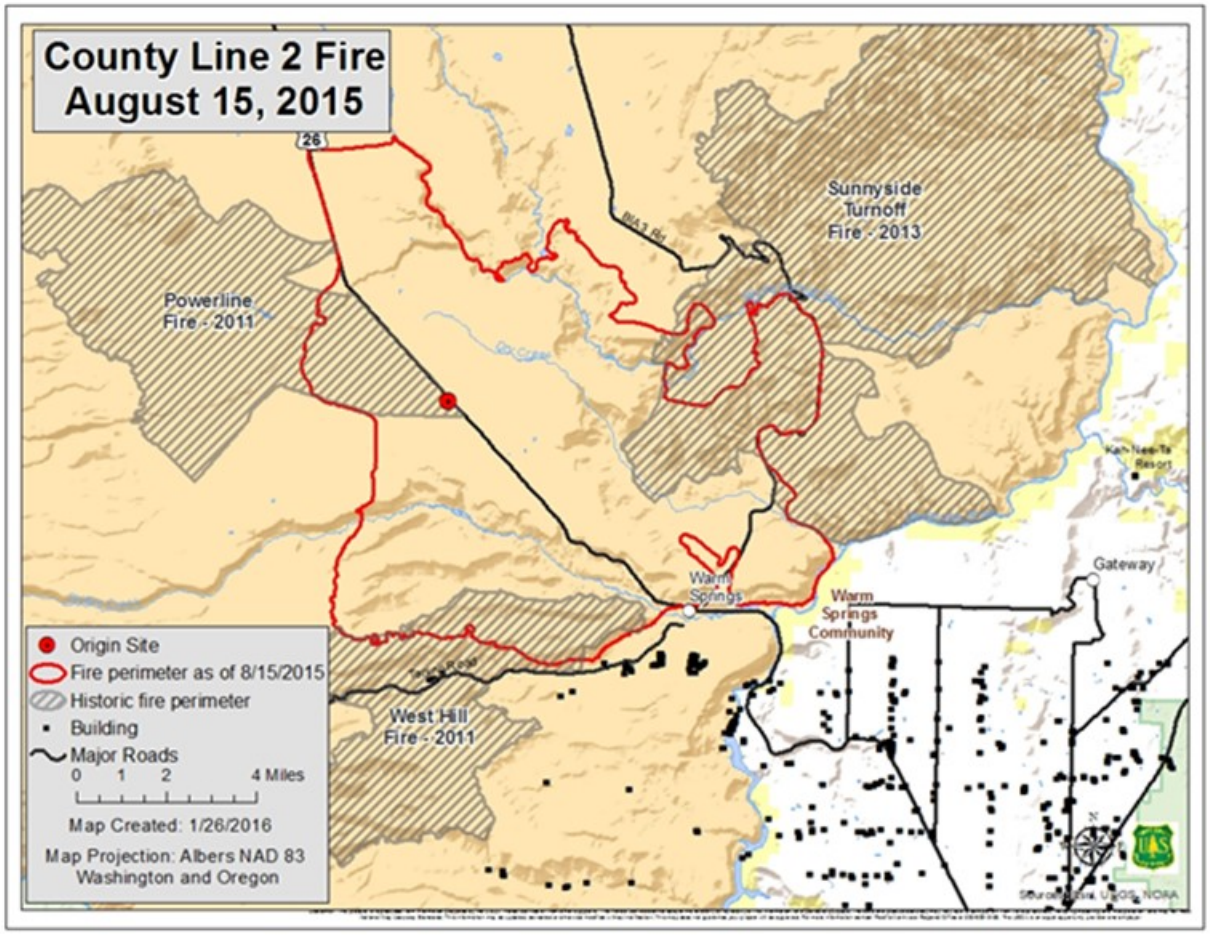
According to the ICS 209, aerial firefighting resources are limited with only a single Type 3 Helicopter assigned to the fire. More than 115 new fires had started on the previous two days in the Pacific Northwest which created severe competition for firefighting resources. Due to the high winds and rapid fire spread, the effectiveness of the Single Engine Air Tankers assigned to the fire is also limited, while firefighting support from the DC-8 Very large Air Tanker is sporadic due to its use on other evolving wildfires in this Geographic Area.

The Oregon Interagency Incident Management Team #1 is in-briefed by the Warm Springs Agency at 5 p.m. on August 13 and takes command of the fire beginning at 6 a.m. the following morning.

August 14-15

Management Direction: Implement a Full Suppression Strategy

A new Wildland Fire Decision Support System (WFDSS) process decision is published early on August 14 that defines the course of action for the fire. Specifically, it tasks the Incident Management Team to



The red line above shows the County Line 2 Fire perimeter on the afternoon of August 15. The yellow areas outline the proximity of past fires, with the fire name and date. Old dozer lines from these fires were utilized to help suppress the County Line 2 Fire.

keep the fire west of the Deschutes River, south of Schoolie Flat Road, east of the powerline across Mill Creek Flats, and north of Dry Hollow Road. Management direction is to implement a full-suppression strategy using a combination of direct and indirect line. The County Line 2 Fire continues to be influenced by high winds. These winds and the flashy nature of the fuel lead to the fire's continued rapid expansion.

The Incident Management Team is able to begin opening old dozer lines from recent fires adjacent to the existing County Line 2 Fire perimeter, including the 2011 West Hills and Powerline fires and the 2013 Sunnyside Turnoff Fire (see map above).

Crews are able to contain the fire along portions of Highway 26. The rapid burn out time of the light fuels allows the highway to be reopened on August 15.

A structure damage assessment released by the Oregon State Fire Marshal's Office on August 15 indicates that two residences were totally destroyed. In addition, four residences were damaged. Of these six structures, only two were currently being lived in at the time of the fire.

Number #1 Priority Fire for this Geographic Area

The August 15 ICS 209 reports the fire is now 55,200 acres with 20 percent containment, primarily along portions of Highway 26 and on the fire's southeast flank adjacent to the Warm Springs community. During the past two days, fire staffing has increased dramatically. The fire is currently the number #1 priority fire for this Geographic Area.

As of August 15, the County Line 2 Fire is supported by 24 Crews (19 Type 2 Crews), 60 Engines, 6 Dozers and 2 Helicopters, including a Type 1 Helicopter.

No critical resource needs are indicated on the ICS 209.

Firefighters implement burn out operation on the County Line 2 Fire on August 16. Photo by Randy Green.

August 16-18

Fire Grows an Additional 11,000 Acres, Threatens Kah-Nee-Ta Resort

On August 16 the County Line 2 Fire grows in excess of 11,000 acres, spreading into Shitike Canyon to the southeast.

The fire is threatening the Kah-Nee-Ta High Desert Resort and Casino.

Winds remain strong, gusting between 10 to 16 mph most of the day. Wind direction is highly variable, causing the fire to be active on both its west and east flanks.

As the fire spreads into and adjacent to Shitike Canyon, the representative "fuel" becomes timber. Thus, the loss of commercial timber begins to occur on tribal lands. Due to the heavy fuel loads and Shitike Canyon's steep sidewalls, tactical suppression options are constrained.

Warm Springs Fire Management indicates that Shitike Canyon is classified as "Conditional Use" lands with land management constraints similar to "Wilderness" restrictions. Portions of the area where the County Line 2 Fire burned had not been logged or received fuel treatments in more than 50 years.

Fire activity leads to the deactivation of the main 230 kilovolt powerline that services the local area. However, Portland General Electric is able to reroute power and no long-term impacts to the community of Warm Springs occurs.

On August 17 a new WFDSS decision is published that reaffirms the current overall strategy. It defines four tactical Management Action Points (MAP). These MAPs establish trigger points for firing operations on the fire's south and west sides. However, by the time the decision is published, fire spread had been stopped in all areas of the fire—with the exception of Shitike Creek.

TOP: Image is looking northwest up Shitike Canyon. The County Line 2 Fire forced the evacuation of the Kah-Nee-Ta Resort. The fire burned on both sides of Oregon State Highway 26 (pictured on left) and forced the temporary closure of this significant travel way. BOTTOM: More close-up image of Shitike Canyon west of Kah-Nee-Ta Resort.

Intense fire behavior, the steep sloped-terrain, and the lack of Type 1 Crews are all limiting the Incident Management Team from implementing direct fire line operations in Shitike Canyon.

Fire Continues to be Active in Shitike Canyon
By August 18, a combination of direct and indirect fire line has been completed that successfully holds fire spread on the fire's east and north flanks.

New fires near Lake Chelan in Washington have dropped the County Line 2 Fire to the 15th priority fire for this Geographic Area. While minimal fire spread is now occurring on the majority of the fire—even where fire line had yet to be constructed—Shitike Canyon remains active.

The evening ICS 209 now reports the fire at 62,000 acres. It is 43 percent contained.

August 19

No More Threat to Structures
Because the threat to structures has now been mitigated, the Oregon State Fire Marshal's Office resources are released today. With the release of their equipment, the State Fire Marshal's Office is also removed from the Unified Command.

In the afternoon, a minor fire slop-over on the fire's northeast corner is contained by the end of the night shift.

The Fire Entering Shitike Canyon Imposes a Variety of Negative Impacts

Shitike Canyon is a unique geologic feature consisting of bare or talus-covered bedrock; landslide debris; and locally, thick colluvial aprons that descend in long sweeping slopes down to Shitike Creek.

Alluvial terraces up to 40 meters above the river level exist in wider portions of the canyon. Thick vegetation exists within the canyon walls.

In 2015, the canyon had been set aside by the Confederated Tribes of Warm Springs as a "carbon sequestration site". ("Carbon sequestration" describes the long-term storage of carbon dioxide—trees store large amounts of carbon—to help reduce global warming). Agreements had also been signed with industry in 2015 to retain these lands as a carbon offset.

Shitike Canyon serves not only as a carbon sequestration area, but also as an important habitat for Threatened and Endangered species. In addition, it provides the water source for the Confederated Tribes of Warm Springs Reservation.

The County Line 2 Fire's spread into Shitike Canyon caused both economic losses for the Warm Springs Tribe as well as imposing negative impacts to the various significant resources associated with this canyon.

Shitike Canyon remains the only active portion of the fire. On this day, this is the only area in which the County Line 2 Fire grows.

August 20-29

Despite Red Flag Weather Events – Fire Activity is Confined to Shitike Canyon
During this 10-day period, a series of Red Flag weather events challenge suppression efforts on the fire. However, fire activity continues to be confined only to Shitike Canyon.

During this time, crews are able to suppress several small (6 to 10 acres) spot fires. But they are unable to keep the fire from spreading within the confines of the Shitike Canyon.

In addition, Single Engine Air Tankers are used for operational support on August 21 and August 28. A Large Air Tanker is also used in the vicinity of Shitike Canyon on August 28.

Despite Strong Southwest Winds
Minimal Fire Growth Occurs

On August 29 a frontal passage with strong southwest winds impacts the County Line 2 Fire.

While these winds are strong enough to ground all aviation resources for the day, they blow the fire back onto itself, limiting the fire's forward spread and allowing crews the opportunity to reengage in direct suppression actions as well as scouting for a way across Shitike Canyon.

As shown in the table below, fire growth from August 20 through August 29 is minimal.

To protect it from the approaching County Line 2 Fire, firefighters wrap Shitike Butte Lookout on August 22. Photo by Peter Reinhardt.

Fire Growth – August 20 through August 29					
Date	Acres	Change (acres)	Date	Acres	Change (acres)
8/20	64,450	-	8/25	65,300	100
8/21	64,950	500	8/26	65,800	500
8/22	65,155	205	8/27	65,800	0
8/23	65,155	0	8/28	66,433	633
8/24	65,200	45	8/29	66,496	63

Burn out operation on the County Line 2 Fire on August 22. Photo by Randy Green.

August 30-31

Fire Line Completed
Across Shitike Canyon

On August 30 spotty light rain affects the County Line 2 Fire area.

The Warm Springs Base RAWS on the eastern portion of the fire does not record measurable rain. The Mutton Mountain RAWS, located northeast of the fire, and the Hehe #1 RAWS, located northwest of the fire, both record from 0.02 to 0.03 inches of rain.

This change in the weather is enough to moderate fire activity and allow crews to access the fire edge using a combination of direct hand line and dozer line supported by hose lays to complete fire line across Shitike Canyon.

In addition, on August 30, no new spot fires occur. This allows suppression resources to remain focused on completing this final segment of fire line in Shitike Canyon.

August 30 is also the last time crews work a night shift on the fire. During this final night shift, two small spot fires are reported and are successfully contained.

Fire behavior on the County Line 2 Fire on August 15. Photo courtesy of the Oregon Department of Transportation.

September 1-3

Fire Management Transitions Back to the Local Unit

Fire line repair and mop-up continues for three days under moderate weather conditions.

On September 3 at 7 a.m., management of the County Line 2 Fire is transitioned back to the local unit and a Type 3 organization.

The fire's final size is 67,207 acres.

Appendix P – Carpenter Road Fire (Originally known as the Rocky Fire)

For Interactive Map:
http://arcg.is/1XxAZqK

Carpenter Road Fire

Date of Ignition
August 13, 2015

Cause
Arson

Land Ownership at Fire Origin
Spokane Indian Reservation, Spokane Tribe of Indians

Responding Initial Attack Resources
Day 1 Rocky Fire – Bureau of Indian Affairs: 3 Type 6 Engines, 1 Type 3 Dozer. Stevens County: 5 Brush Trucks, 1 Water Tender
Day 2 Carpenter Road Fire: Bureau of Indian Affairs: (same resources as above). Department of Natural Resources, Colville National Forest and Stevens County Fire Protection Resources

Preparedness Level at Time of Ignition
National: PL 5
Local: PL 5

Acres Burned
63,972 Acres

Estimated Cost
$22,528,000

Land Jurisdictions
Bureau of Indian Affairs Spokane Agency, Spokane Reservation, Washington State Department of Natural Resources; Bureau of Land Management

Resources at Incident Peak
Total Personnel: 1,041
Crews: 30
Engines: 67
Helicopters: 5

Structures Destroyed
18 residences
14 other

Cooperators
Stevens County Sheriff, Stevens County Commissioners, Spokane Tribal Police, Washington State Emergency Management Department, Washington State Department Of Correction, Fruitland Bible Camp, Stevens County Fire District #2, Washington State Fire Marshal Service

Key Successes on the Carpenter Road Fire

The work of individuals with the Stevens County Volunteer Fire Department—along with other fire resources—to successfully evacuate residents was key on this incident. With limited resources available and winds exceeding 40 miles per hour pushing the fire, this evacuation operation was a true success.

"We got people out alive" summarized the Duty Officer with the Washington State Department of Natural Resources.

The Fire Chief for the Stevens County Fire District #2, stated that although 18 homes were lost, successful structure protection—the evacuation of 200 children and adults coupled with the protection of the Fruitland Bible Camp—are significant accomplishments on this fire.

Special Issues, Concerns, and Challenges Surrounding this Incident

As the fire unfolded, boundaries between jurisdictions presented problems. There were three dispatch centers involved with the initial call-out. During the initial evacuations and structure protection, there was minimal cross-jurisdictional communication.

Initial Attack/Extended Attack August 13 Through August 16

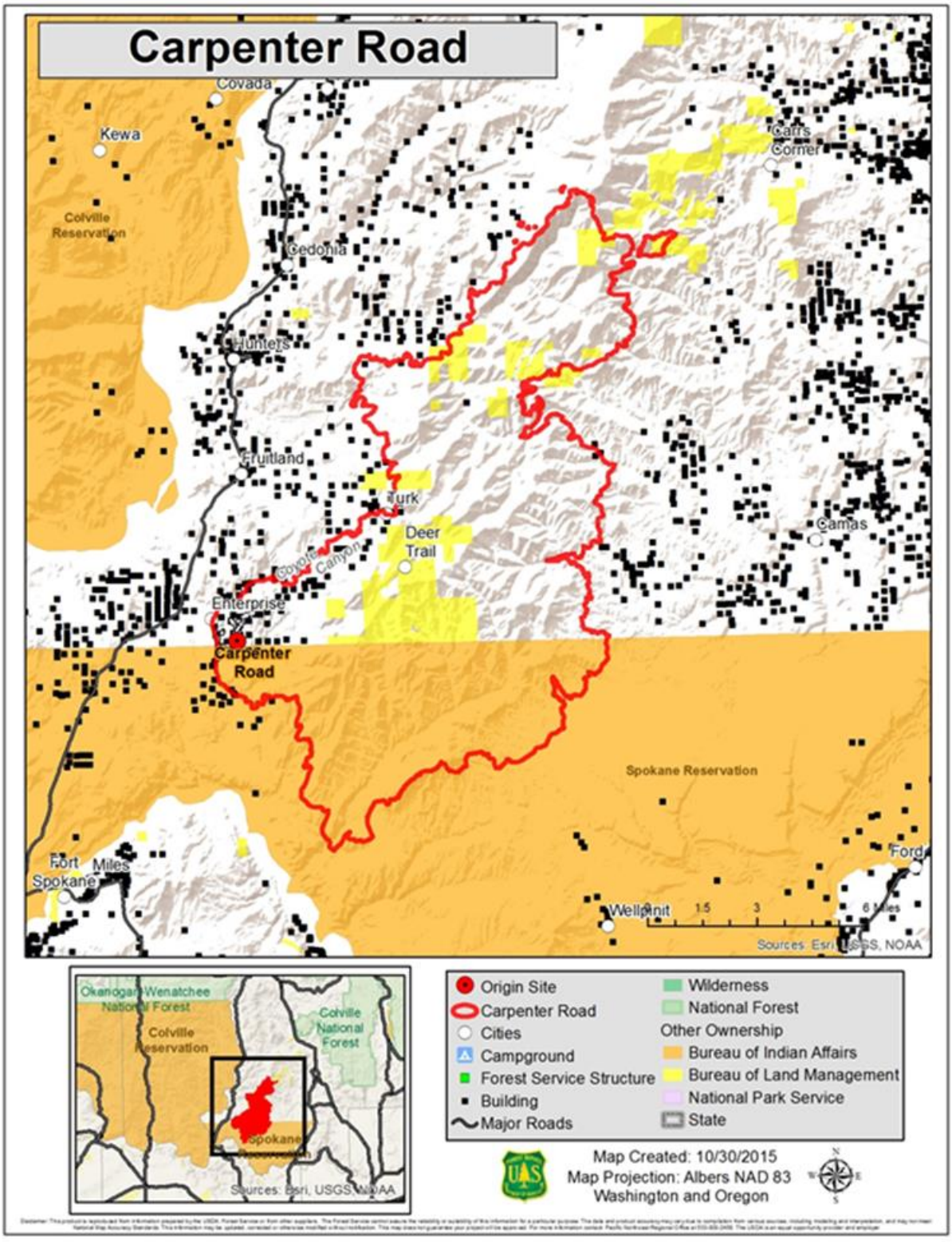
Fire Contained at 6.4 Acres

The Carpenter Road Fire started on August 13 on the Spokane Indian Reservation.

(The fire's cause was investigated and determined to be an arson fire as announced by the Bureau of Indian Affairs and reported in a September 14, 2015 *Spokane Spokesman-Review* newspaper article. At this time, because there is an ongoing investigation, information is limited.)

Tribal firefighting resources were dispatched from the Spokane Indian Reservation's own dispatching facility in Wellpinit, Washington. Concurrently, the volunteers from Stevens County Fire District #2 were dispatched by the Stevens County Emergency Operations Center. Stevens County Fire District #2 was first on scene and took command. The fire was initially named the Rocky Fire. As Tribal firefighting resources arrived on scene, they assumed command and the local Stevens County Fire District #2 departed from the incident.

The fire was lined and mopped-up to 50 feet inside the fire perimeter. No open flame was present or large smokes near the fire perimeter. The fire was considered contained at this point. Resources were released and returned to quarters. (These resources are identified in the informational box to the left.)


Carpenter Road
Covada
Kewa
Colville Reservation
Cedonia
Hunters
Fruitland
Turk
Deer Trail
Coyote Canyon
Enterprise
Carpenter Road
Gaffs Corner
Camas
Spokane Reservation
Fort Spokane
Miles
Ford
Wellpinit
0 1.5 3 6 Miles
Sources: Esri, USGS, NOAA
Okanogan-Wenatchee National Forest
Colville Reservation
Colville National Forest
Spokane
Sources: Esri, USGS, NOAA
Origin Site
Carpenter Road
Cities
Campground
Forest Service Structure
Building
Major Roads
Wilderness
National Forest
Other Ownership
Bureau of Indian Affairs
Bureau of Land Management
National Park Service
State
Map Created: 10/30/2015
Map Projection: Albers NAD 83
Washington and Oregon
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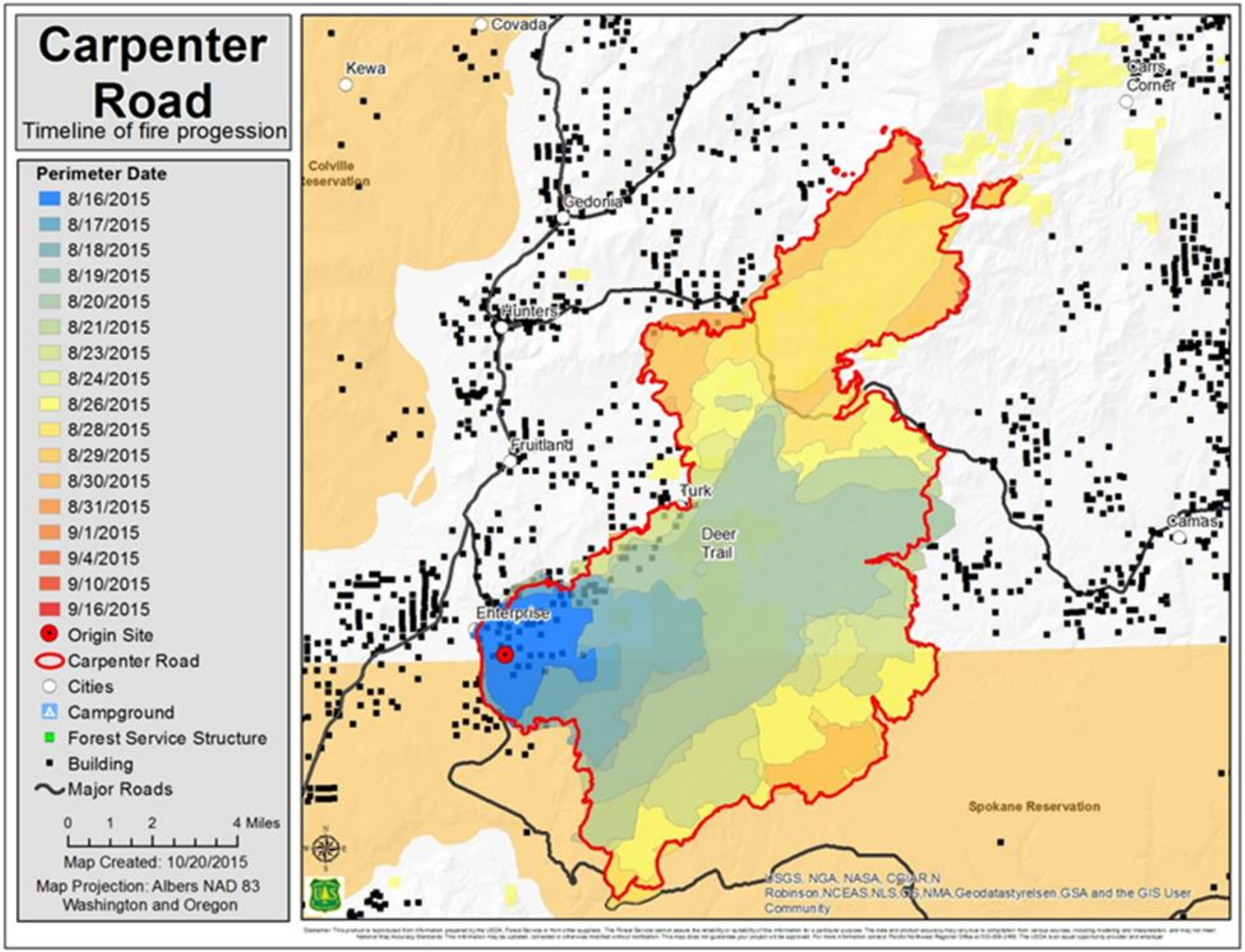

Carpenter Road
Timeline of fire progession
Perimeter Date
8/16/2015
8/17/2015
8/18/2015
8/19/2015
8/20/2015
8/21/2015
8/23/2015
8/24/2015
8/26/2015
8/28/2015
8/29/2015
8/30/2015
8/31/2015
9/1/2015
9/4/2015
9/10/2015
9/16/2015
Origin Site
Carpenter Road
Cities
Campground
Forest Service Structure
Building
Major Roads
0 1 2 4 Miles
Map Created: 10/20/2015
Map Projection: Albers NAD 83
Washington and Oregon
Covada
Kewa
Colville Reservation
Gedonia
Hunters
Fruitland
Turk
Deer Trail
Enterprise
Cairns Corner
Camas
Spokane Reservation
USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, GSA and the GIS User Community

August 14

Fire Burning in Same Area—Threatening Homes

At approximately 7 p.m. the next day, Tribal Law Enforcement informed the Spokane Tribe Fire Management Officer that there was a fire burning in the vicinity of the previous day's Rocky Fire. Tribal resources were again mobilized.

Simultaneously, the County 911 Center dispatched the volunteers of Stevens County Fire District #2. There was smoke reported north of the Reservation boundary. Upon arriving on scene, it was noticed that to the south a column of smoke was rapidly developing.

Photo of the Carpenter Road Fire taken by a citizen on August 15 looking north as he drives toward the town of Creston. Photo from Flickr by Brett Larson and Inciweb Carpenter Road Fire.

The fire was reported to have moved one-half to one-third of a mile in a very short time. It was threatening homes. The Northeast Washington Interagency Communication Center (NEWICC) was informed by the County 911 Center of the fire and NEWICC logged the incident as Carpenter Road. The Carpenter Road Fire was the name used for mobilizing regional and national resources and remained the name of record.

Responding resources reported that the fire was "raging" and threatening homes. These suppression resources included the Spokane Tribal Volunteer Fire Department and Stevens County Fire District #2. Primary consideration was for the welfare of the nearby residents. Structure protection and evacuations were the focus of the initial efforts. The Stevens County Fire District #2 Chief was the Incident Commander for the structural protection for unfolding events north of the boundary. The Spokane Tribal Fire Management Wildland Firefighters were continuing to fight the wildland fire on the Spokane Indian Reservation.

When arriving on scene the night of August 14, the Spokane Tribe of Indians Fire Management Officer recognized that the fire was growing at an alarming rate. The currently assigned resources would not be enough to contain the fire. He therefore made the call for a Type 2 Incident Management Team.

August 15

Evacuation Operations Remove Threatened Residents

While no specific resources were officially recorded in the WildCAD log (WildCAD is a GIS-based Computer-Aided Dispatch [CAD] system) as being on scene until the early morning hours of August 15, the Spokane Tribal Police and Stevens County Fire District #2 were conducting evacuations of threatened residents.

Shortly after midnight, with the fire at approximately 1,000 acres, the WildCAD log indicates that Stevens County Fire District #2 reported there was a civilian fatality. As the fire approached and this resident was attempting to move his equipment to a safe place, he reportedly suffered a heart attack. His wife and daughter were unable to revive him and had to escape from the flames. (Due to roads being impassable, the deceased individual could not be retrieved until the following day.)

During this same timeframe, Stevens County Fire District #2 also requested Type 1 and Type 6 Engines for structure protection via the Washington State Fire Service Mobilization Plan.

Six homes were reported lost.

Early in the morning of August 15, suppression activity picks up. At 9 a.m., WildCAD indicates a Department of Natural Resources Type 4 Incident Commander took command of the fire. WildCAD also shows Type 5 and Type 6 Engines are requested to support structure protection in addition to the requested Engines through the Washington State Fire Service Mobilization Plan.

A Type 4 incident management organization engage the fire with line scouting, fire engines, mechanical and hand line construction, and helicopter bucket drops. The primary focus is on structure protection and evacuations. Though not documented in WildCAD, Washington State Department of Natural Resources personnel reported that a Unified Command structure was in place between the State and the Fire District at 8:55am. By 11 a.m., the Spokane Agency was included.

By midmorning, limited visibility is hampering air support.

The Incident Commander reports the fire to be a plume-dominated fire, which is an indicator of extreme atmospheric instability with extreme fire behavior potential. WildCAD reports support the Department of Natural Resources response that there were myriad resources requested and responding.

Multiple Fires, Resources Stretched Thin Across the Pacific Northwest

At this same time, the entire Pacific Northwest area—across Washington and Oregon—was experiencing a severe fire threat with multiple fires, extreme fire behavior with rapid growth, and resources stretched beyond capacity. On the morning of August 15, there were 29 uncontained "Large Fires" (a wildfire of 100 acres or more in timber or 300 acres or more in grass/sage) with nine new Large Fires aggravating an already tenuous fire situation. From August 14 to August 15, there had been an increase in acres burned across the Region with 101,410 acres of existing fires and more than 20,000 acres of new fire growth—a strong indicator that near-term containment would be elusive.

A CL-415 "Super Scooper" aircraft supports firefighting efforts on the Carpenter Road Fire. Photo from the August 25 InciWeb.

The Carpenter Road Fire had not yet made the regional Large Fire list.

Simultaneous Efforts Underway on the Carpenter Road Fire

On August 15, the Carpenter Road Fire could be categorized as an explosive, plume-dominated fire that presented a fast-changing situation with many simultaneous efforts underway from at least three points:

- Structure protection priorities are reportedly under the guidance of the Stevens County Fire District #2.

- The non-Tribal lands wildland effort is under the command of a Washington State Department of Natural Resources employee.
- The Spokane Tribe of Indians Wildland Firefighters are continuing their response on Reservation lands.
- As reported above, by late morning the three entities had established a Unified Command structure.

Focus is Now on Structure Protection and Evacuations

Late during the morning of August 15, the Incident Commander made contact with the Spokane Tribe of Indians Fire Management Officer.

Because the fire is headed northward off the Reservation toward Coyote Canyon, their focus is on structure protection and evacuations. The fire is now reported to be more than three miles long and is actively growing. At some point during the midmorning, it is learned that an order for a Type 2 Incident Management Team had been placed the night before.

Carpenter Road Fire August 15 Summary

- Reports of many downed power poles with lines arcing.
- Type 5 and Type 6 Engines ordered for both structure protection and suppression.
- Fire crosses into Coyote Canyon. More homes are threatened.
- A Forest Service Contract CL-415 water scooper is made available. A Very Large Air Tanker (a DC-10) is used to support structure protection and suppression activities.
- Insufficient ground resources are available to support the aerial delivery of retardant and suppressants.
- At mid-afternoon, the Incident Commander reports the fire at approximately 5,000 acres.
- In the late afternoon, Stevens County Fire District #2 personnel are sent home after a 30-hour shift when Washington State Fire Service Mobilization Plan Engines begin arriving.
- The Incident Commander states that he needs 30 to 40 Type 3 Engines because current resources are inadequate.
- Spokane Tribe of Indians resources are released as they have worked more than two shifts.

Carpenter Road Fire August 16 Summary

- The Incident Commander is on duty until the Type 2 Rocky Mountain Blue Team takes command of the fire at 6 p.m.
- There are a myriad of references to air tankers and helicopters on scene in support of ground operations.
- At 4 p.m., the fire is estimated to be 8,000 to 9,000 acres. The operational focus is on structure protection in Coyote Canyon. A WildCAD reference from the Incident Commander states that 22 buildings are lost—a mix of residences and outbuildings mostly along Carpenter Road and Titus Canyon. He further states that most of the homes in Titus Canyon are gone.
- Spokane Tribe of Indians firefighting resources are made available and used the next four days until more out-of-area resources become available.

Major Fire Expansion—Limited Availability of Resources

The Type 2 Rocky Mountain Blue Team was on the incident for 16 days.

During this two-week period, significant fire growth and extreme fire behavior occurred—coupled with limited availability of resources.

Due to resources already being assigned to other major fire incidents, it would be well over a week before sufficient resources could be made available to the Carpenter Road Fire.

The peak number of firefighting resources occurred the third week of the fire. The Type 2 Rocky Mountain Blue Team's Incident Commander indicated that it took approximately 10 days to receive adequate resources. The Incident Status Summary (ICS 209) reports support this contention.

Carpenter Road Fire night operations on August 28.

Nine New Large Fires and 37 Uncontained Large Fires Burning Across the Region

On August 16, the Carpenter Road Fire had burned 5,000 acres. This fire made the new Large Fire category and inclusion into the regional incident priorities. At this time, across Washington and Oregon, there was an increase of 142,291 acres from the previous burning period. There were nine new Large Fires and 37 uncontained Large Fires.

By the time the Rocky Mountain Blue Team was assigned, the Carpenter Road Fire was a late entry into the resource request process. (The team was enroute to the Canyon Creek Fire in Oregon when they were informed it had become a Type 1 incident. They were then directed to go to Redmond, Oregon and stand by for an assignment. While passing through Spokane, the Incident Commander was communicating with a dispatcher at the Northeast Washington Interagency Communication Center when the need for an Incident Management Team on the Carpenter Road Fire was realized. The Rocky Mountain Blue Team was assigned to the Carpenter Road Fire. Because team members were scattered across the west—enroute to Redmond, Oregon—they needed time to reassemble for their assignment on the Carpenter Road Fire.)

The next 10 days were extremely challenging as there were limited resources available to be assigned to the Carpenter Road Fire. The fire experienced most of its expansion during this time.

The Spokane Tribe of Indians provided approximately 55 firefighters. While they were not officially assigned to the fire, they were used for both day and night shifts. The Spokane Tribe Fire Management Officer wanted to have them available for Initial Attack if needed.

Fire personnel peaked on September 6—five days after the transfer of command to the Oregon Team #3 Incident Management Team.

Highlights During the Fire Expansion Period

Thank you to Carpenter Road Fire responders.

Extreme Fire Spread Days

Between August 18 and 19 the fire grew 10,000 acres. From August 20 -21, the fire grew another 10,000 acres. The next big growth days occurred from August 25 through August 28 when 18,000 acres were added to the Carpenter Road Fire's total acreage. The last day of considerable fire growth was August 29 when another 5,000 acres burned. For those days when there were no major expansions of the fire perimeter due to Red Flag conditions, exceptionally dry fuels and steep slopes still supported fire growth of several thousand acres to burn almost daily.

Interference by Private Citizens

Early in this incident, there was a local private individual who owned a Type 6 Engine who was taking independent action in support of local residents on the fire. A Division Supervisor noticed this engine was not on the official list of resources. Next, this individual set a back fire around a home that interrupted other operations. Law enforcement was called and the following day, this individual was arrested for unrelated charges. The Incident Commander reported that this individual had been "Red Card" rated (approved to engage in fire suppression activities) but this certification had expired five years previously.

There were two "near misses" by individuals who wanted to protect their own property. Even though these people were informed there were evacuations and closures in place, they wanted to protect their structures. They ultimately experienced a "Near Miss" by the fire—but safely evacuated the next day. In another incident, two land owners were concerned about their timber lands. They were told not to access their properties—but did so regardless. The rapidly approaching fire front forced these residents to make an emergency evacuation on an ATV. The ATV and a pickup were lost and these individuals barely made it out.

Post Major Fire Expansion Days

On September 2 at 6 a.m., the Oregon Incident Management Team #3 took command of the Carpenter Road Fire. While this team certainly had their work cut out for them, their focus was to hold on to all the gains previously made.

Though there were small changes in the fire size during this period, the challenge continued to be getting the right resources in the right place to construct fire line and strengthen the defenses in place. This was all to be done while still protecting homes and reducing the evacuation and closure levels. While fire behavior early in the period had moderated to a creeping and smoldering fire, due to dry fuels and predicted weather, the potential for more severe fire activity was extreme.

On September 4-5, 0.6 to 1.0 inch of rain fell across the fire area, followed by a few lingering showers during the subsequent days. This weather event effectively stopped the short-term concerns for fire spread and ultimately provided the opportunity to finish line construction and perform mop-up 100 feet inside the fire perimeter, as well as perform repair work on control lines. The percent of fire containment rapidly increased. By September 8, the fire was 90 percent contained.

On September 15 at 6 a.m., the Carpenter Road Fire was turned back to local management with a Type 3 Organization. The fire was declared controlled by the three jurisdictions on September 24.

Appendix Q – North Star Fire

For Interactive Map: http://arcg.is/1NlyZk6

North Star Fire

Date of Ignition
August 13, 2015

Cause
Human

Land Ownership at Fire Origin
Colville Agency, Confederated Colville Tribes

Responding Initial Attack Resources
30 personnel, including: 1 Type 3 Helicopter with Initial Attack Module; 2 Type 2 Dozers, 4 Type 6 Engines, 1 10-Person Hand Crew, 2 Task Force Leaders-Dozer, 2 Heavy Equipment Bosses, 1 Type 3 Incident Commander, and EMS structure protection

Preparedness Level at Time of Ignition
National: PL 5
Local: PL 5

Acres Burned
218,138 Acres (as of 9/29/15)

Estimated Cost
$44,501,000 (as of 9/29/15)

Land Jurisdictions
Colville Agency, Okanogan-Wenatchee National Forest, Washington State Department of Natural Resources, rural fire districts

Resources at Incident Peak
Crews: 20
Engines: 79
Helicopters: 15

Structures Destroyed
1

Cooperators
Colville Agency, Colville Bureau of Indian Affairs, Colville Police Department, Colville Emergency Management, Rural Fire District 13 and 14, Okanogan County, Ferry County, U.S. Forest Service, Washington State Department of Natural Resources, Washington State Department of Transportation, Washington State National Guard, and Coulee Dam Fire Department

By Evening of Second Day Fire Grows to 10,000 Acres

The North Star Fire started on the afternoon of August 13. This fire grew quickly in logging slash and heavy timber fuels, exhibiting active crown fire behavior.

When the North Star Fire was reported, many of the Colville Agency's Initial Attack resources were already engaged in suppression activities on other fires on Tribal lands.

These two images were taken from a video made by the Initial Attack Incident Commander during an Initial Attack recon via helicopter at 7:50 p.m. The flanks and head of the fire were exhibiting active crowning and spotting up to ½ mile or more. Top – Running crown fire at head of the North Star Fire during Initial Attack. Bottom – Prolific spotting on east flank of North Star Fire during Initial Attack.

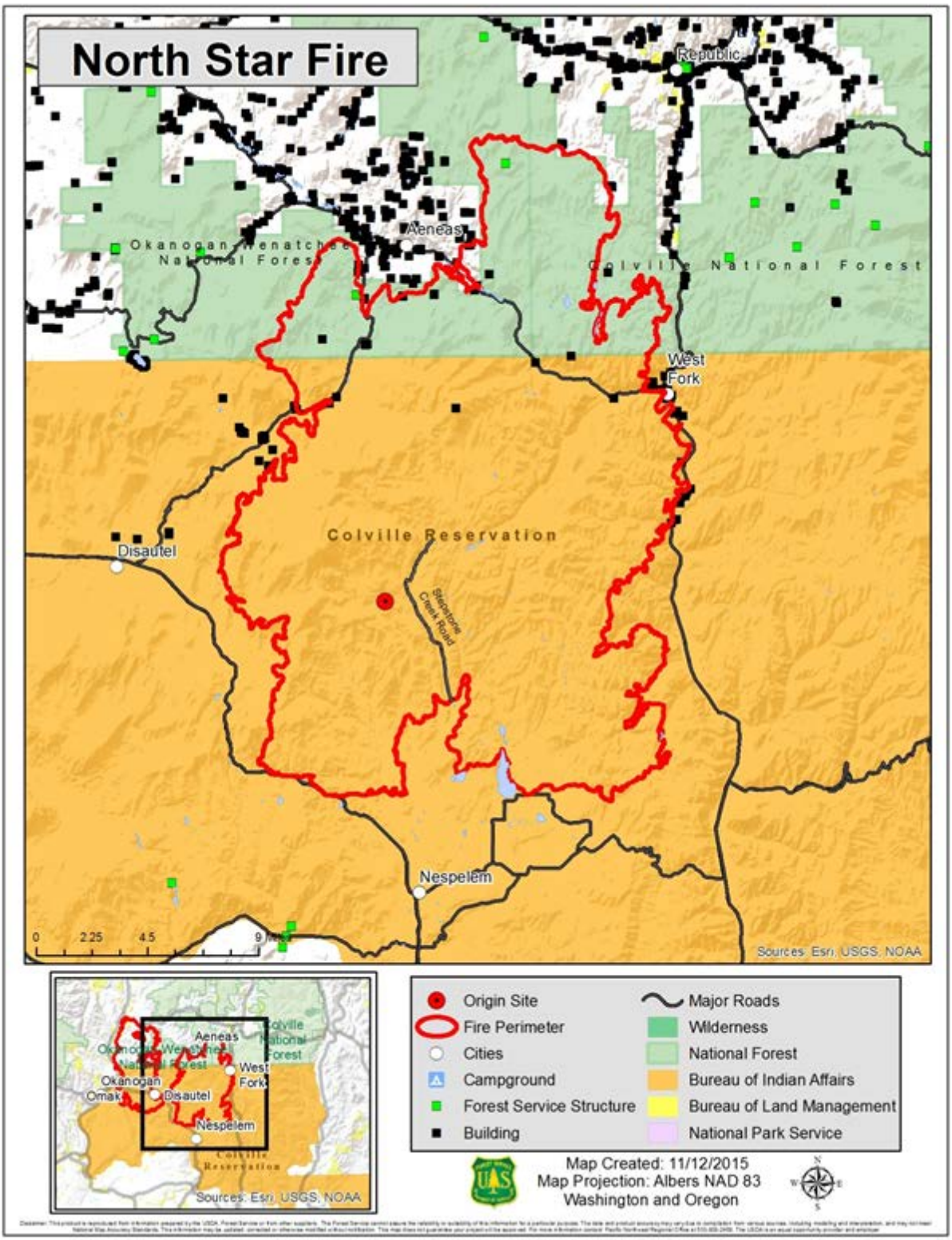
In the North Star Fire area, the Industrial Fire Precaution Level (IFPL) was III (partial shutdown; power saws and other equipment can be used from 8 p.m. to 1 p.m.; fire watch required for one hour after operations cease). The morning of the fire, both the National and Northwest Preparedness Levels had been upgraded to 5. Fire danger on the Colville Agency was Very High.

The fire was reported at 3:28 p.m. The Initial Attack Incident Commander responded at 3:30 p.m. and was on scene by 4:05 p.m. The fire was already approximately 200-300 acres. The temperature was 95 degrees Fahrenheit; relative humidity was 21 percent. Slash and heavy dead fuels were contributing to rapid fire spread and intensity.

Type 2 IMT Requested During Initial Attack
The fire's potential for large growth and increasing complexity prompted the Initial Attack Incident Commander to order a Type 2 Incident Management Team.

The fire posed a threat to residential structures that prompted the request for evacuation of residents in the Gold Lake Road and North Star Loop areas.

The Initial Attack Incident Commander organized an Operations group and assigned Divisions. (See box on left for specifics on Initial Attack forces.)


North Star Fire
Republic
Aeneas
Okanogan Wenatchee National Forest
Colville National Forest
West Fork
Colville Reservation
Disautel
Nespelem
Sherman Creek Road
0 2.25 4.5 9 Miles
Sources: Esri, USGS, NOAA
Origin Site
Fire Perimeter
Cities
Campground
Forest Service Structure
Building
Major Roads
Wilderness
National Forest
Bureau of Indian Affairs
Bureau of Land Management
National Park Service
Map Created: 11/12/2015
Map Projection: Albers NAD 83
Washington and Oregon
Okanogan
Omak

The plan was to anchor and hold the fire's east flank at Stepstone Road.

By that evening, the fire was still exhibiting running crown fire behavior. The first night's Incident Commander said the fire exhibited crown fire behavior throughout the night, occasionally dropping to surface fuels, then transitioning back to crown fire. Slash and heavy downed fuel continued to contribute to the fire's intensity. The fire had multiple heads. That first evening, the North Star Fire was estimated at 1,200 acres.

Additional Resources Unavailable
For several days, the unavailability of additional resources limited the suppression organization to an anchor-and-flank strategy.

At this same time, several Large Fires were burning across the Pacific Northwest—many in the state of Washington. These fires had a higher priority for firefighting resources.

By the evening of the fire's second day it had grown to 10,000 acres.

A Type 2 Incident Management Team from the Southwest Region, SW #5, was mobilized and arrived on the fire the evening of August 16. By that time, the fire had covered 25,000 acres.

Notable Successes

Successful Initial Attack
The Colville Agency continued to initiate successful Initial Attack actions even after the North Star Fire was under command of The Type 2 Southwest Incident Management Team #5, beginning on the fire's third day.

Firefighter and Public Safety
Another noteworthy success was the safety record from Initial Attack through Type 1 IMT management. Firefighter and public safety remained a primary—successfully achieved—objective throughout the course of this fire.

Successful Structure Protection
Successful structure protection actions are also to be commended in the management of the North Star Fire. The only losses were unoccupied cabin sites.

Clear Leader's Intent
The Incident Commander for the Southwest Team #5 noted how the direct involvement with Agency Administrators led to clear Leader's Intent and well-defined values at risk.

Increased Productivity
Travel times were reduced and productivity increased by establishing an Incident Command Post in Omak, Base Camp in Nespelem, and various spike camps.

While some ordered resources were now arriving, the majority of orders were not being filled. Point protection strategy and tactics were utilized to protect values, prioritized by: 1) life; 2) property; and 3) natural resources.

Resources Still Lacking; Weather Disrupts Suppression Tactics
Over the next ten days, the fire grew to 170,000 acres.

Resources were slowly arriving. Changing wind directions and periods of visibility problems due to inversions confounded suppression tactics.

The Tunk Block fire, managed by the Okanogan Complex, would soon be managed with the North Star Fire.

On August 26, the Pacific Northwest Type 1 Incident Management Team #3 received an in-briefing on the North Star Fire from SW Team #5 and an in-briefing on the Tunk Block Fire from the Rocky Basin Type 1 IMT #1.

On August 31, the Pacific Northwest Incident Management Team #3 transitioned onto both fires, taking command of the North Star Fire—now 200,953 acres, and the Tunk Block Fire—now 161,440 acres. Limited resources necessitated continued point protection strategy and tactics.

Type 1 IMTs Managing Two Fires
PNW Team #3 continued point protection, direct and indirect line construction, and firing operations on both the North Star and Tunk Block fires through September 9.

That day, the PNW Team #3 transferred command to the Type 1 California Incident Management Team #5. Three days later, on September 12, command of the North Star Fire—now 211,356 acres, and the Tunk Block Fire—now 162,693 acres—was transferred to the Type 1 California Incident Management Team #1.

Tunk Block Fire Makes Significant Runs
The Tunk Block Fire was part of the Okanogan Complex and later assigned to PNW Team #3. Located between Omak and the North Star Fire, from August 20-23, it made significant runs—growing from 13,337 acres to 119,114 acres.

Over the next few days, the Tunk Block Fire continued to make substantial runs, including a push from its southeast flank that spotted over Highway 155 toward the North Star Fire.

Fire activity was mostly limited to the eastern flank. Suppression actions were managed by the PNW Team #3 from August 31 until this team's departure on September 9. At that time, the Tunk Block Fire remained under the management of California Team #1, who also had command of the North Star Fire.

Significant Daily Fire Growth Continues
Daily fire growth on both the North Star and Tunk fires was significant from August 14 through August 21.

The North Star Fire gained 33,000 acres on August 18. By August 24, it covered more than 155,000 acres.

Each successive Incident Management Team had to prioritize portions of the fire to focus the efforts of very limited resources.

Issues, Concerns, and Challenges

Lack of Aviation Assets
A significant issue for the Initial Attack Incident Commander was lack of aviation assets, particularly Air Tankers.

For several days, the Colville Agency had to continue Extended Attack suppression actions with no significant increase in resource numbers. (It wasn't until day five that Single Engine Air Tankers arrived.)

Fire Behavior Exceeds Suppression Capacity
Fire behavior vastly exceeded suppression capacity on the North Star Fire. Frustration was felt by overhead that no significant assistance was forthcoming. They realized only a change in the weather was going to assist their efforts.

Colville Agency Issues include Cultural Sites, Timber Values
The Colville Agency has many issues, concerns, and challenges related to natural resources and sites of cultural significance.

Economic impacts of damage to or loss of timber values is a significant concern to the Tribal community. They now face many challenges in the coming years to manage forest resources impacted by the North Star Fire.

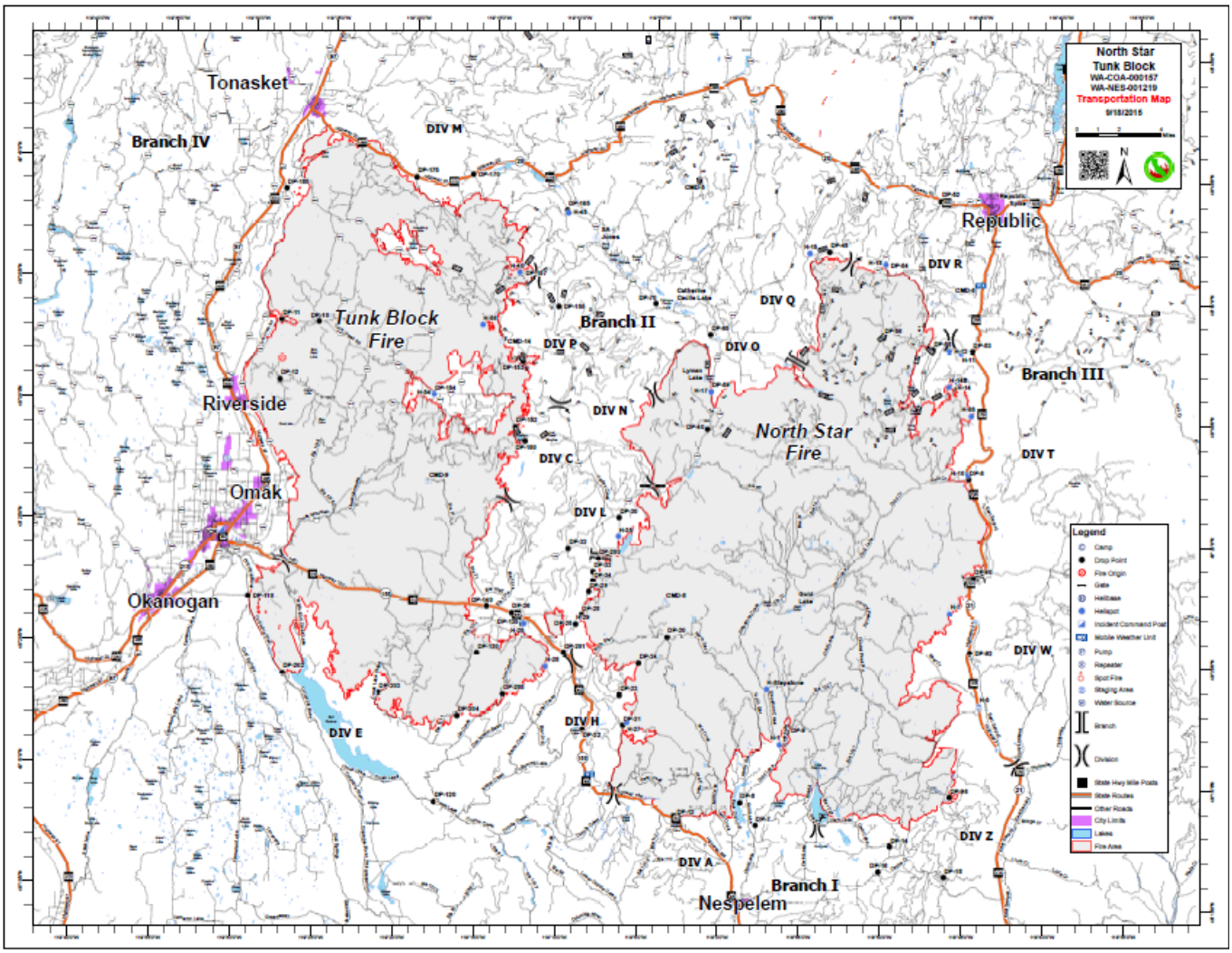
Management Challenge: Huge Scale of Fires and Lack of Available Resources
Two of the Incident Management Teams were challenged by the scale of the fires. When the fire was 75,000 acres, one of these IMTs had only 150 personnel assigned. An Incident Commander also noted an issue with ordered resources going to the Okanogan Complex.

By the time the Tunk Block Fire was assigned to PNW Team #3, the two fires covered 1,000 square miles and ranged from 900 to 6,600 feet-plus in elevation. The North Star Fire, alone, had 360 miles of fire line perimeter.

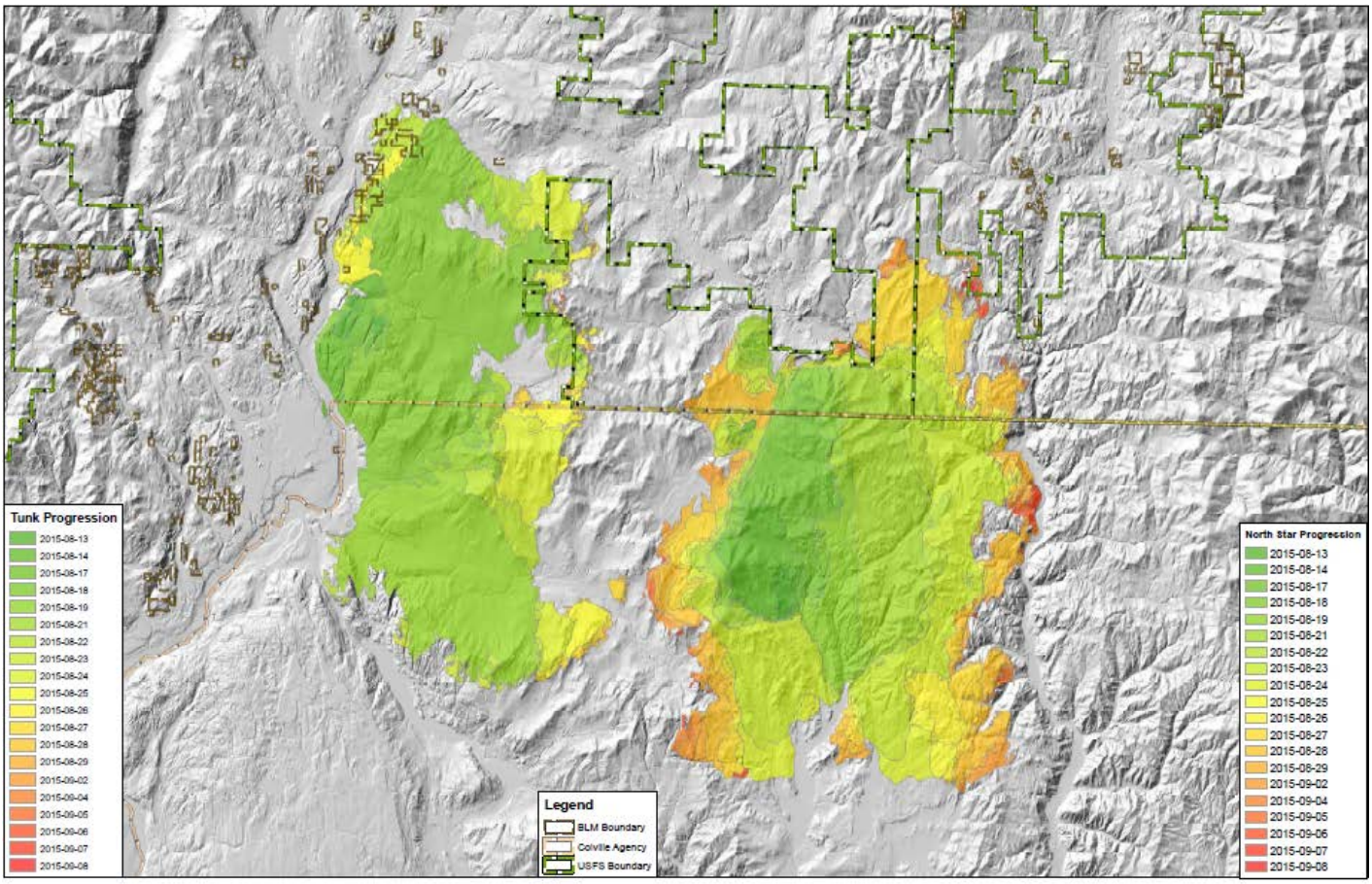
Divisions were many miles in length over terrain not accessible by vehicle.

Resource numbers on the incident were equal to numbers typically seen on fires of a few thousand acres. Travel times were extensive.

Due to the immense geographical scale of the two fires, field reconnaissance efforts could only address specific priority areas.



Photos of the North Star Fire taken on August 15.



North Star Fire (on right) and Tunk Block Fire Progression Map.

Summary

The North Star Fire occurred during the peak of the 2015 wildfire season in the Pacific Northwest. Regional and National preparedness levels were at 5. Because resources were at draw-down levels, a significant number of resource orders were not filled. Lend/lease agreements with adjacent jurisdictions and agencies provided suppression resources when resource orders were not being filled.

Although these resources remained available for Initial Attack, this arrangement enabled point protection on threatened structures. While this provided some help, the incident was still significantly understaffed for the fire management's stated objectives.

Fire behavior was significant and it is notable that firefighter and public safety was prioritized under these conditions.

In addition, it should be noted that as the scale of the operational area exceeded the design capabilities of radio systems, communication issues emerged.

Appendix R – Grizzly Bear Complex

For Interactive Map: http://arcg.is/1NlA2R5

Grizzly Bear Complex

Ignition Date
August 13, 2015

Cause
Lightning

Land Ownership at Fire Origin
Umatilla National Forest

Responding Initial Attack Resources to 22 New Fire Starts
Two Helitack, Six Smokejumpers, Six Engines

Preparedness Level at Time of Ignition
National: PL 5
Local: PL 5

Acres Burned
82,659 Acres (as of 10/15/15)

Estimated Cost
$21,517,287 (as 10/15/15)

Land Jurisdictions
U.S. Forest Service, Washington State Department of Natural Resources, Oregon Department of Forestry

Resources at Incident Peak
Total Personnel: 1,116
Crews: 35
Engines: 43
Helicopters: 5

Structures Destroyed
35

Cooperators
Washington State Department of Natural Resources, Oregon Department of Forestry, Oregon National Guard

Counties
Columbia, Wallowa, Garfield, Asotin

States
Alaska, Colorado, Florida, North Carolina, Utah, Virginia, Wisconsin, Wyoming

Other Countries
Canada and Australia

Key Successes on the Grizzly Bear Complex

Existing Relationships – Preseason communications with cooperators and recent interagency efforts on Extended Attack fires allowed for good communication and coordination between agencies. Initially, the fires were a low priority for resources due to being in the wilderness. As the fires merged and exhibited explosive fire behavior and moved out of the wilderness, this Complex became a higher priority for resources. The positive relationships among the local wildland fire agencies facilitated access to firefighting resources. Additionally, interagency cooperation enabled the use of multiple avenues for acquiring equipment needed to construct containment lines and support burn out operations and mop-up activities. The value of these existing relationships in securing resources was critical to the successful outcome of the Grizzly Bear Complex.

Unified Command – Assistance to firefighting efforts to maintain 24-hour structure protection within the communities was maintained for several days through Unified Command with the Oregon State Fire Marshal's Office and three Task Forces of structure Engines.

Community Engagement – The area surrounding the Grizzly Bear Complex experienced multiple fire events in the preceding weeks, including: the Table Rock Complex (June 28); Blue Creek Fire (July 20); and the Phillips Creek Fire (August 1).

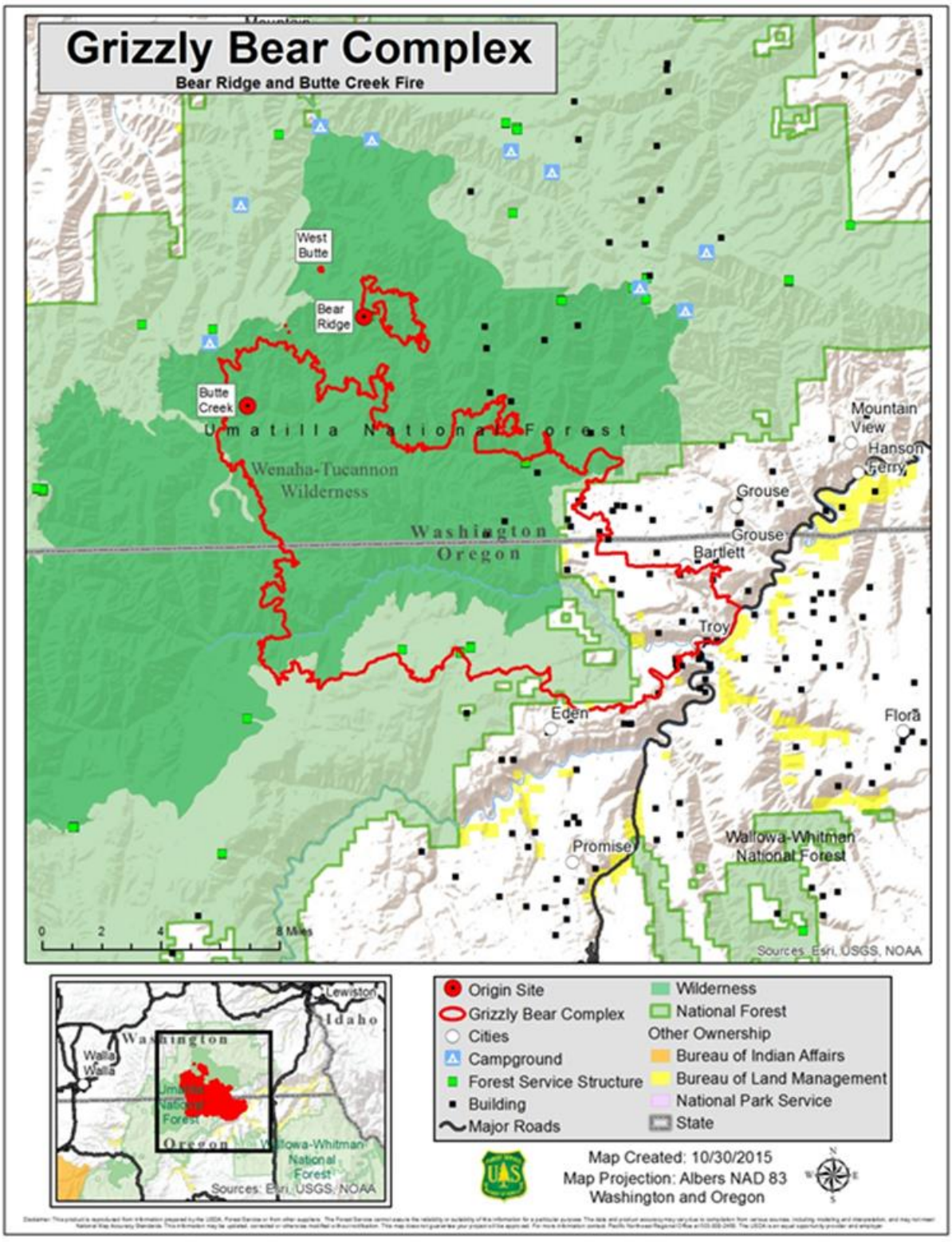
Soon after the Blue Creek Fire, the Umatilla National Forest participated with Walla Walla and Columbia County Emergency Management Services to promote and encourage "Firewise" communities at a local public meeting. Through this effort, valuable communication with the community had been established prior to the start of the Grizzly Bear Complex.

The Umatilla National Forest sent out news releases and fire summary updates twice a day to a large contact list and local media outlets. The Incident Management Team continued this practice when it took command. In addition, the Incident Management Team managed a Facebook page that experienced high visitation and helped guide interested parties to the InciWeb page. Several public meetings were also held during the fire in surrounding communities, allowing the IMT members and various agency personnel to speak "in person" to affected communities.

Dry Lightning Storm Triggers 22 New Fire Starts

On Tuesday August 13, a dry lightning storm that produced nearly 50 down-strikes passed over the Umatilla National Forest, triggering 22 individual fire starts (117 new fires occurred in the Pacific Northwest on August 12-13).

Seventeen of these new fire starts were located within the Wenaha-Tucannon Wilderness; the other five were outside this wilderness area. Aggressive suppression was implemented on all five non-wilderness fires, all of which were in a "patrol" status within four operational shifts. Many of the 17 wilderness fires went unstaffed and—because forecasted high winds prompted the removal of firefighters engaged in suppression—the remainder of these fires exceeded Initial Attack efforts.


Grizzly Bear Complex
Bear Ridge and Butte Creek Fire
West Butte
Bear Ridge
Butte Creek
Umatilla National Forest
Wenaha-Tucannon Wilderness
Washington
Oregon
Mountain View
Hanson Ferry
Grouse
Grouse Bartlett
Troy
Eden
Flora
Promise
Wallowa-Whitman National Forest
0 2 4 8 Miles
Sources: Esri, USGS, NOAA
Lewiston
Idaho
Washington
Walla Walla
Oregon
Origin Site
Grizzly Bear Complex
Cities
Campground
Forest Service Structure
Building
Major Roads
Wilderness
National Forest
Other Ownership
Bureau of Indian Affairs
Bureau of Land Management
National Park Service
State
Map Created: 10/30/2015
Map Projection: Albers NAD 83
Washington and Oregon

The 17 wilderness fires merged into either the Butte Creek or Bear Ridge fires, which later became the Grizzly Bear Complex.

The day these numerous starts occurred, the National and Pacific Northwest Region Preparedness Levels were both raised to the maximum severity of 5. According to the National Situation Report, at this same time, 73 active "Large Fires" (a wildfire of 100 acres or more in timber or 300 acres or more in grass/sage) were burning across the nation with 21,714 firefighting resources assigned. A total of 18 Large Fires were active in Oregon and Washington with 6,523 firefighters assigned.

Special Issues, Concerns, and Challenges Surrounding the Grizzly Bear Complex

Available Resources – The unavailability of resources precluded the ability to keep wilderness fires small during Initial Attack. As higher-priority fires across the Pacific Northwest drew available resources, there was a lack of aviation assets and aerial delivered firefighters. This situation presented limited opportunities to check fire spread with aviation assets.

Above Average Fire Activity – A dry winter resulted in the higher elevations—normally under snow—to be exposed to solar radiation and the long-duration drying of fuels of all sizes. Many fire starts occurred earlier than a normal fire season and proved to be challenging to contain and control.

Hot, Dry Weather – From mid-June through mid-July, daily tracking of the Energy Release Component (ERC) showed values trending well above average and occasionally setting new historic maximums. After mid-July, wetting rains from thunderstorms decreased these ERC trends. Even though these periodic rain events slowed the fire season's intensity, more hot and dry weather caused ERC values to quickly rebound.

Wilderness – There is a perception that indirect suppression efforts on wilderness fires are not sufficient and that more direct actions should/could have been taken.

The storm system that ignited the Grizzly Bear Complex passed through much of the Pacific Northwest, causing many new fire starts and a corresponding surge in demand for firefighting resources throughout the Pacific Northwest Region.

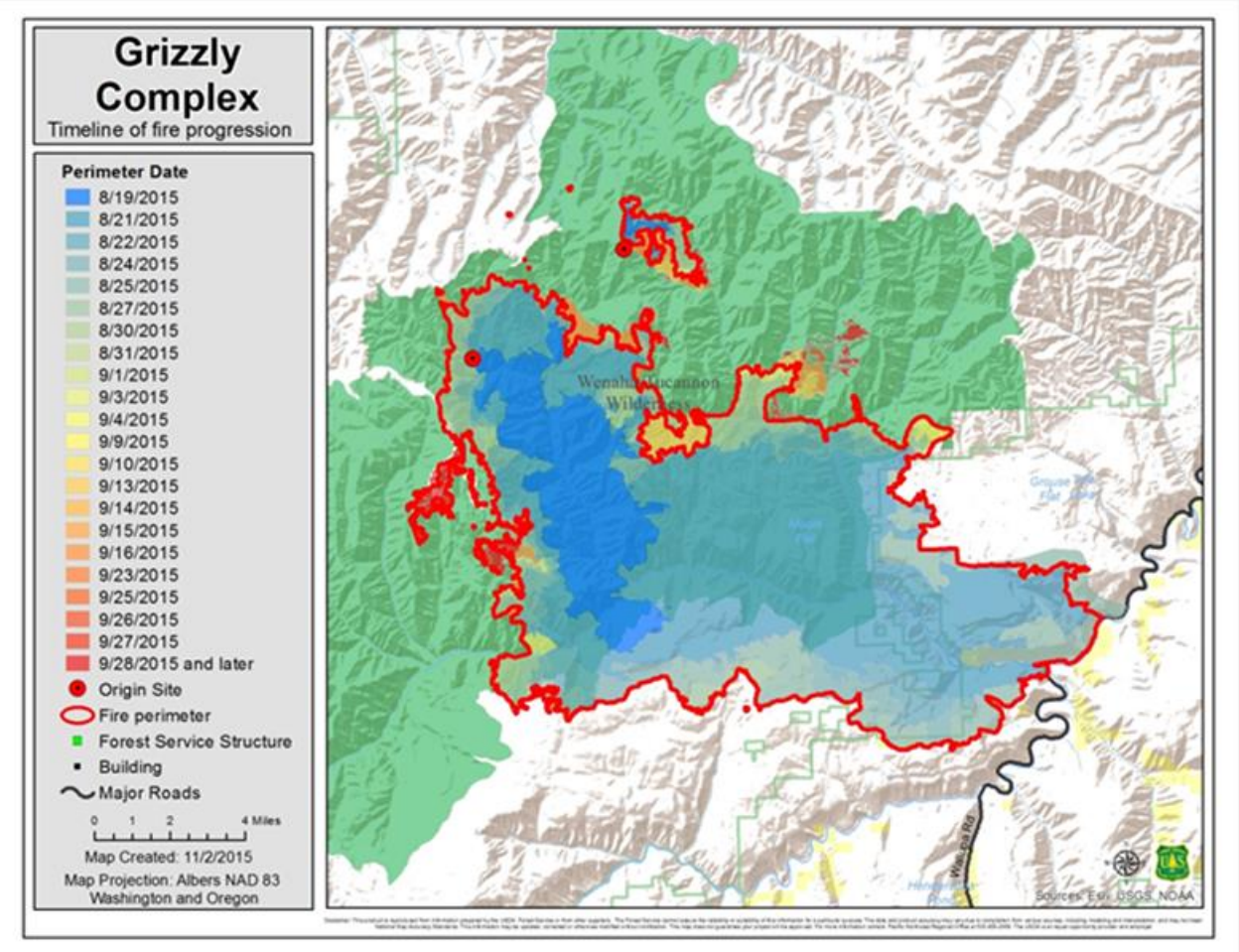
Communities and Watersheds among the Values at Risk Threatened by the Grizzly Bear Complex

The numerous fires which grew together to form the Grizzly Bear Complex started southeast of Dayton, Washington. The fire threatened several critical values within the area including: private property, residences, seasonal cabins; and significant infrastructure that included power lines, the Bluewood Ski Area, historic buildings, Forest Service special use cabins, campgrounds, fire lookouts, guard stations, commercial hunting sites, and active timber sales.

The Grizzly Bear Complex also threatened the Mill Creek Municipal Watershed and private water systems; Threatened and Endangered bull trout and salmon species; and the communities of Troy, Anatone, Flora, Grouse Flats, and Eden Flats.

Confine and Contain Strategy Selected

Umatilla National Forest leadership completed a strategic risk assessment as well as a Wildland Fire Decision Support System (WFDSS). Due to the fire's location (distance from commercial resources and private property), the scarcity of firefighting resources, and the higher priority fires locally, regionally, and nationally, a confine and contain strategy within the Wenaha-Tucannon Wilderness boundary was selected.



Fire progression map of the Grizzly Bear Complex.

Long-Term Strategic Plan

A long-term strategic plan for managing the fire was developed with the assistance of a National Incident Management Organization (NIMO) Team.

A Type 2 Incident Management Team assumed command of the fire on August 21, replacing the local Type 3 Incident Management Team that had been in command since the fire's August 13 start date.

Suppression Response Summary

Seventeen New Fires Burning Inside the Steep, Difficult Terrain of the Wenaha-Tucannon Wilderness

"Firefighter and public safety are our top priority. We pulled our firefighters back to a safe location. We didn't have the aerial resources to support them on the ground and no way to extract them with the predicted wind event. We'll reassess our suppression strategy once the fire behavior allows."

Deputy Fire Staff Officer
Umatilla National Forest
on August 14

Within four operational shifts, local Initial Attack resources were successful in suppressing five of the non-wilderness fires to a "patrol" status. The Forest had insufficient firefighting resources to fully staff the 17 other fires ignited by the same lightning storm. These fires were located within the steep, difficult terrain of the Wenaha-Tucannon Wilderness.

Because of the severity of the fire season and potential for the fires to move outside the wilderness, the Line Officer quickly approved the use of chainsaws in wilderness to assist in suppression activities. All firefighters on the wilderness fires were ordered to disengage after a couple of days due to strong gusty winds (up to 35 mph), intense fire behavior, steep slopes, and lack of effective escape routes and safety zones.

"Firefighter and public safety are our top priority," explained the Deputy Fire Staff Officer, Umatilla National Forest, on August 14. "We pulled our firefighters back to a safe location. We didn't have the aerial resources to support them on the ground and no way to extract them with the predicted wind event. We'll reassess our suppression strategy once the fire behavior allows."

Increased Fire Behavior and Spotting Create Two Fires—Managed as the Grizzly Bear Complex
The 17 wilderness fires continued to burn and required Extended Attack as increased fire behavior and spotting caused fires to grow together, merging into the Butte Creek and Bear Ridge fires. These two incidents were then managed as the Grizzly Bear Complex.

August 15

A Type 2 Incident Management Team was ordered on August 15—but none was available. The next day, a new fire—the West Butte Fire—was reported within the Wenaha-Tucannon Wilderness, burning inside the wilderness near the wilderness boundary.

It was identified as a priority for suppression and staffed with rappellers and a helicopter to do bucket work due to small fire size and its proximity to the wilderness boundary. Three days later, this fire was reported as "Secure".

Fire Runs Six Miles—Grows from 2,000 to 12,000 Acres

For five straight days—from August 13 through August 18—Air Attack confirmed increasing fire behavior within the wilderness fires. On August 18, the fire ran six miles and grew from 2,000 to 12,000 acres. Four Heavy Air Tankers and one Lead Plane were ordered—but all such resources were already committed to other incidents.

August 19

On August 19, a National Incident Management Organization (NIMO) Team was poised to assist the local Type 3 Incident Management Team. However, shortly after the in-brief, it was diverted to manage a wildland fire fatality event elsewhere in the Pacific Northwest Region.

On August 20, the fire grows to 30,000 acres. The Grizzly Bear Complex's smoke plume could be seen for more than 100 miles away.

Residents of the town of Troy, located at the bottom of this steep, rugged Wenaha River Canyon, were forced to evacuate by the fast-approaching Grizzly Bear Complex Fire on August 20. Photo by Bill Swartley.

Also on August 19, a "Level 1 Evacuation" ("BE READY" for potential evacuation) was issued for the following communities: Eden Bench, Grouse Flat, and Troy.

The order for a Type 2 Incident Management Team was filled. This team would assume command on August 21.

August 20

On August 20, a Red Flag Warning is in effect as low humidity, high winds, and hot rising temperatures—with no chance of rain—were forecasted over the fire area.

Fire behavior increases significantly on this day due to sustained winds of 10 mph with gusts up to 25 mph. The fire is pushing east toward several communities.

Residents Evacuate; Conflagration Act Enacted

Level 3 Evacuation notices ("GO" Evacuate NOW. LEAVE IMMEDIATELY) were issued for Eden Bench, Grouse Flat, and Troy. At this time, very few resource orders have been filled and local Engine Modules were supporting Extended Attack.

By the evening of August 20, Washington State Department of Natural Resources and Oregon Department of Forestry Engines were engaged in the point protection of structures.

On August 20, the Governor of Oregon invoked the Emergency Conflagration Act which can be invoked if there is a threat to life, safety, and property due to fire and the threat exceeds the firefighting capabilities of local firefighting personnel and equipment. The Oregon State Fire Marshal's Office Green Team was ordered to Troy for structure protection.

While firefighting efforts saved many of the 300-400 homes and outbuildings in the area, five primary residences and 28 outbuildings were lost.

On this day, the fire ran approximately 11 miles, adding an additional 37,602 acres—for a total of 48,000 acres. The Grizzly Bear Complex's smoke plume could be seen more than 100 miles away.

The Oregon Department of Forestry was able to secure the National Guard to support Grizzly Bear Complex fire line activities, increasing the number of fire line personnel by 250.

August 21

The Type 2 Incident Management Team takes command at 6 a.m. The fire is at 48,000 acres, a Red Flag Warning is in place, and there is very little containment.

Resource orders started to fill and crews quickly engaged in structure protection, prepping containment lines, and completing burn out operations. At this same time, aircraft are used to slow the fire and suppress spots near strategic containment lines.

More than 600 Firefighting Resources Make Suppression Progress

Forecasted hot, dry weather was a concern as the fire remained at 0 percent containment for many days. Direct and indirect fire lines were constructed using dozers and logging equipment. More than 600 firefighting resources made progress as fire lines held and fire growth slowed to between 2,000 and 6,000 acres a day.

August 25

By August 25, five percent containment was achieved. The majority of the Grizzly Bear Complex was no longer a threat to communities as mop-up continued near structures.

August 27

The southeast fire perimeter remained active and jumped containment lines, creating a 260-acre spot fire that crews quickly contained.

August 29

Another Red Flag Warning was issued for strong winds. No significant fire growth occurred on those portions of the fire where containment lines had been constructed.

"It's been a long, exhausting month. Getting from A to Z was hard at times. But, in the end, the outcome feels like success. We had few accidents—given the size and scale of this incident—and our relationships with our partners and communities are now stronger."

Fire Management Officer
Pomeroy Ranger District
Umatilla National Forest

September 3

More than 1,100 resources were assigned, performing mostly mop-up.

September 5

Portions of the Grizzly Bear Complex receive rain and snow.

September 6

Command of the Grizzly Bear Complex is transferred to a Type 3 Incident Management Team. The fire, now 75,530 acres in size, is 30 percent contained.

September 18

On September 18, the Grizzly Bear Complex is transferred to the local unit as a Type 4 incident for continued suppression and rehab work. Isolated heat still remains in the fire's interior. The fire is estimated to reach 80,000 acres by its projected containment date of October 21.

Conclusion

The lack of available aerial and ground resources during this fire's critical Initial Attack timeframe impaired suppression efforts. This situation prevented fire managers from keeping new fire starts small and confined to the prescribed wilderness containment boundary.

Fire activity in the Pacific Northwest was at its peak. A wilderness fire with initially low values at risk was a lower priority for receiving scarce resources. While the local Incident Management Team made the most of available resources, it was unable to overcome a high-wind event and dry fuel conditions on a landscape primed to burn as the fire made a run of more than 37,000 acres in a single day, destroying 33 structures in its wake.

As priorities shifted in the Region, the Grizzly Bear Complex was adequately staffed and positioned to handle hot, dry conditions with high winds that threatened critical roads, trails, and ridges identified in the containment strategy as the fire remained entirely uncontained.

Coordination with cooperators and local entities proved key in the successful management of this incident. Effective community communication and engagement led to fulfilling one of the primary objectives of wildland firefighting: Ensuring Firefighter and Public Safety.

Appendix S – Chelan Complex

For Interactive Map:
http://arcg.is/1XxB6CQ

Chelan Complex

Ignition Date
August 14, 2015

Cause
Lightning

Land Ownership at Fire Origin
Okanogan-Wenatchee National Forest

Responding Initial Attack Resources
8 Crews (Type 1 and Type 2 Initial Attack), 3 Type 1 and 2 Type 2 Helicopters, 19 Engines (all types), and 2 Dozers (primarily reassigned from the Wolverine Fire)

Preparedness Level at Time of Ignition
National: PL 5
Local: PL 5

Acres Burned
88,985 Acres (as of 9/23/15)

Estimated Cost
$10,000,000 (as 9/23/15)

Land Jurisdictions
U.S. Forest Service, Chelan Fire District, Bureau of Land Management, Washington State Department of Natural Resources

Resources at Incident Peak
Total Personnel: 1,249
Crews: 26
Engines: 104
Helicopters: 12

Structures Destroyed
25

Cooperators
Washington State Department of Natural Resources, Chelan Fire District, Chelan County Sheriffs, Okanagan Sheriffs, Washington National Guard, American Red Cross, Washington State Patrol, Washington State Fire Marshal's Office, Washington Department of Fish and Wildlife, Washington Department of Transportation, National Park Service, Lake Wenatchee Fire and Rescue, Chelan County Public Works

Lightning Ignites Multiple Fast-Spreading Fires

Background

Early on the morning of August 14, a lightning storm moved through Washington's Chelan Valley, igniting multiple fires which eventually were grouped into the Chelan Complex. The fires that started on National Forest System Lands that morning included the Reach, Cagle, Black Canyon, Squaw Creek (eventually renamed McFarland), Antoine, and First Creek.

These fires spread rapidly. They were driven by steady 30 mph winds, with reports of stronger gusts.

The Reach, Cagle and Antoine fires burned together and were renamed the Reach Fire. The First Creek Fire, located on the west shore of Lake Chelan, was geographically isolated from these other fires.

Successes

Insights Shared by Incident Commanders Chris Schulte and Clay Templin

1. The Chelan County Sheriffs were outstanding in all facets of their job.

2. The lack of a Unified Command was not seen as an issue as the agencies provided Agency Administrators to the incidents with the authority to speak for their agency. These individuals were readily available when required to make decisions or implement actions.

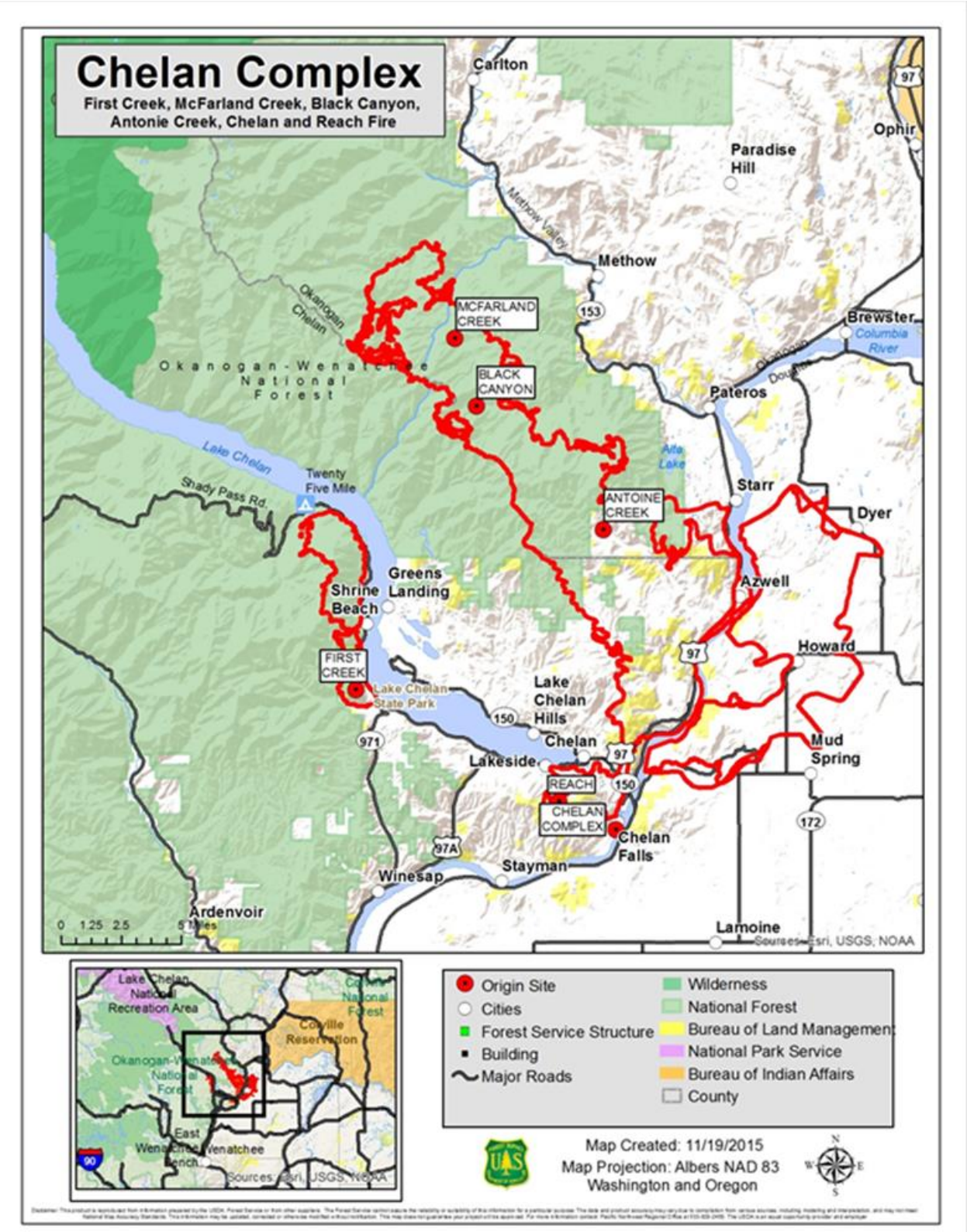
3. The lend/lease of resources between the Okanogan Complex and the Chelan Complex was important for the efficient management of both of these complexes.

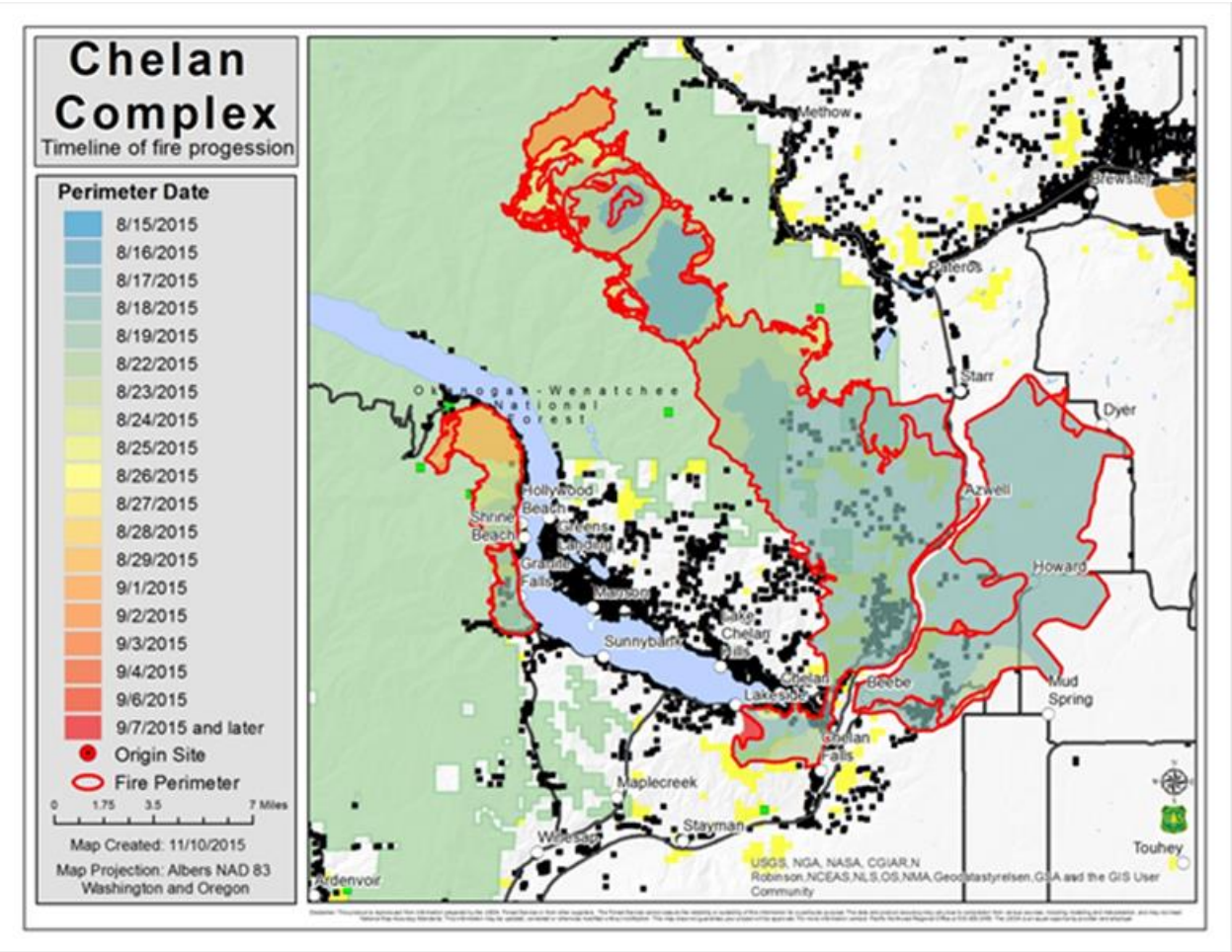
4. Community Response Teams, working far ahead of the fire on education with local communities worked well. When long-duration fires seem likely, it is recommended that these special teams be used even sooner.

Firefighters Mobilized from the Nearby Wolverine Fire to Help with Suppression Efforts

The Pacific Northwest Incident Management Team #2, a Type 1 Incident Management Team, was assigned to the Wolverine and Blankenship fires the morning of August 14. However, when the Incident Commander first awoke, he was able to see two fires from the Incident Command Post (ICP) located in Chelan Falls and he could also see the smoke column from the Antoine Fire.

Given that day shift had yet to be briefed or deployed to their shift assignments on the nearby Wolverine Fire, the Incident Commander was able to mobilize—using firefighters from the Wolverine Fire—approximately 600 firefighters to Initial Attack actions on these new fires.


Chelan Complex
First Creek, McFarland Creek, Black Canyon, Antonie Creek, Chelan and Reach Fire
Carlton
Ophir
Paradise Hill
Methow Valley
Methow
MCFARLAND CREEK
BLACK CANYON
Okanogan Chelan
Okanogan-Wenatchee National Forest
Brewster
Columbia River
Pateros
Alta Lake
Lake Chelan
Twenty Five Mile
Shady Pass Rd
ANTOINE CREEK
Starr
Dyer
Azwell
Greens Landing
Shrine Beach
FIRST CREEK
Lake Chelan State Park
Howard
Lake Chelan Hills
Chelan
Lakeside
Mud Spring
REACH
CHELAN COMPLEX
Chelan Falls
Stayman
Winesap
Ardenvoir
Lamoine
0 1.25 2.5 5 Miles
Sources: Esri, USGS, NOAA
Origin Site
Cities
Forest Service Structure
Building
Major Roads
Wilderness
National Forest
Bureau of Land Management
National Park Service
Bureau of Indian Affairs
County
Map Created: 11/19/2015
Map Projection: Albers NAD 83
Washington and Oregon
Lake Chelan National Recreation Area
Colville National Forest
Colville Reservation
East Wenatchee Bench
Wenatchee



These efforts were in conjunction with the suppression efforts coming from the Chelan Fire District and the Okanogan-Wenatchee National Forest. While no formal Initial Attack plan had been developed by the Incident Command Team and no specific geographic area had been delegated to this team for Initial Attack fire support, point protection and perimeter control actions were occurring. These actions were being coordinated from the Chelan Fire District Headquarters station.

V I D E O

See Deputy Incident Commander Rob Allen explain how and why firefighting resources were moved from the Wolverine Fire to the Chelan Complex fires.

https://www.youtube.com/watch?v=nlPja3j09-I

Chelan Complex Evolution

August 14 through September 9

August 14

Wolverine Fire Resources Recruited to Help Initial Attack Efforts

During this day, multiple new fire starts grew rapidly on Bureau of Land Management, U.S. Forest Service, and Chelan County land jurisdictions. In the original delegation to the Incident Management Team, Initial Attack support for new starts had been identified as a responsibility. With new fires visible from the Incident Command Post, resources originally planned for use on the 25-mile contingency line of the Wolverine Fire

Protecting Homes from the First Creek Fire

A special water-scooping aircraft drops its loads on the approaching First Creek Fire to protect homes and private lands on August 15.

Photos by Kari Greer, U.S. Forest Service

were made available for Initial Attack on these new fires. All aircraft assigned to the Wolverine Fire were also diverted to support operations on these new fires.

The initial Incident Status Summary (ICS) 209 indicated that the First Creek and Antione fires had Level 3 evacuations ("Evacuate Now – Leave Immediately") in place. In addition, the Antoine Fire had a high probability of burning into the Reach and Cagle fires. On the original ICS 209, only six engines were indicated as assigned to the Antoine Fire. This number of engines was augmented by an unknown number of resources from the Wolverine Fire.

The Wolverine Fire ICS 209—developed in support of the August 14 day shift—indicates that this incident had 8 Crews (Type 1 and Type 2 Initial Attack); 3 Type 1 and 2 Type 3 Helicopters; 19 Engines (all types); and 2 Dozers available for Initial Attack support.

18 Structures Lost on First Creek Fire

The Type 1 Incident Management Team's Incident Commander stated that the Operation Section Chiefs assigned to the IMT took the lead in coordinating the actions of the resources from the Wolverine Fire. As new fires were assessed for needs, resources were committed to these fires through the use of the existing communications structure for the Wolverine Fire.

During the first operational period on the First Creek Fire, a total of 18 structures were lost.

By mid-day, to better organize their forces and to understand the scope of their authority to act, the Operations overhead, in conjunction with the Incident Commander, asked for a Delegation of Authority from the multiple jurisdictions involved with the new fires.

An agreement was reached that the Type 1 IMT would assume formal command of the Reach, Antoine, Cagle, McFarland, Black Canyon, and First Creek fires on August 15 at 6 a.m. A decision was also made that a Unified Command would not be used and that the supporting agencies would provide Agency Representatives (Agency Administrators) to the Incident Management Team.

August 15

Fire Crosses Columbia River; Crews, Engines, Aircraft Requested

By the morning of August 15, the Antoine, Cagle and Reach fires had merged and were being managed as a single incident referred to as the Reach Fire. The fire had crossed the Columbia River and was well established in Douglas County.

The National Incident Situation Report for this day indicates that only four Engines were assigned to the Reach Fire. The ICS 209 for the Black Canyon Fire, another of the fires that started on August 14, indicates a total of 10 Engines and 2 Dozers were assigned. The resource tracking and reporting systems had yet to catch up with the rapidly expanding fire situation. After the first three fires had combined into the single Reach Fire, the Black Canyon and McFarland fires eventually were added to the Chelan Complex.

The Incident Management Team had committed resources from the Wolverine Fire to support these new fires. A limited number of firefighting resources were left behind to secure the improvements at Holden Village and Stehekin.

The First Creek Fire's ICS 209 identifies Crews, Engines and Aircraft as critical resource needs.

Air Tanker makes a drop to help protect homes near Lake Chelan on the first day of the Reach Fire.

Photo courtesy YouTube.com.

While available ICS 209s for the various fires do not indicate any structure loss as of this date, this is most likely because an official Damage Assessment Team from Chelan County was unable to access many areas of the fire due to personnel safety concerns.

The Incident Management Team's Incident Commander requests and receives an extension to continue the combined management of the Chelan Complex and Wolverine Fire.

August 16

Reach Fire is 55,000 Acres; No Contained Fire Line on Squaw or Black Canyon Fires

The Reach Fire—now combined as a single incident with the Cagle and Antoine fires—is an estimated 55,000 acres.

The Black Canyon and Squaw Creek (renamed McFarland) fires remain separate incidents. The Black Canyon ICS 209 shows 1 Crew, 1 Engine, 3 Dozers and 3 Water Tenders assigned. The Operations map shows no contained fire line on either the Squaw or Black Canyon fires.

All fires remain active. Resources activated by the Washington State Fire Service Mobilization Plan begin to arrive on these incidents.

August 17

For the First Time in Three Days, Fires Decrease Somewhat in Activity; Structure Losses Reported; 500 Structures Still Threatened

All fires remain active today but to a lesser degree than the first three days.

The first reports of structure losses begin to be identified on the ICS 209s. The Reach Fire has now destroyed 29 structures. The First Creek Fire reports more than 500 structures of various types threatened—but none damaged or destroyed.

Resource sharing between the fires was common as the Incident Management Team had command of all incidents and was able to shift suppression resources to the highest priority protection needs among all fires. Because of this, ICS 209 resource reporting should not be considered fully accurate.

August 17 ICS 209 Resources Assigned (where information is available)

McFarland (formerly Squaw Creek) – 1 Engine, 1 Crew

Black Canyon – 1 Engine, 1 Crew, 1 Dozer, 2 Water Tenders

Reach – 76 Engines, 11 Crews, 10 Dozers, 14 Water Tenders, 6 Helicopters, 1 Air Tanker

First Creek – No information

The Incident Management Team was approaching 21 days assigned to these fires and the Wolverine Fire. An order for the replacement IMT was placed today.

August 18

Level 2 and Level 3 Evacuation Orders Still in Place for Chelan Area; Resources Still Scarce on All Fires; Red Flag Warning Forecast

Contained fire line begins to be recorded on the northeast corner of the Reach Fire. The First Creek, McFarland and Black Canyon fires are still rapidly expanding with no containment identified. The ICS 209s as of this date do not indicate any containment.

V I D E O

See the Incident Commander's August 18 update and current status of the many active fires in the Chelan area.

https://wolverinefireinfo.wordpress.com/2015/08/16/video-update-by-ic-chris-schulte-sunday-aug-16th-2015/

While fire activity moderated some today, a Red Flag Warning is forecast for tomorrow. Both Level 2 ("Be Set to Evacuate") and Level 3 ("Evacuate Now") evacuation orders are still in place for the Chelan area.

Two homes are reported destroyed on the First Creek Fire ICS 209.

Resources continue to be scarce on all fires with critical needs identified on all ICS 209s associated with these fires. The greatest needs are for Type 1 Crews, Engine Strike Teams, Aviation resources and Mid-Level Supervision—especially Division Supervisors and Task Force Leaders. Resources assigned per the 209s:

August 18 ICS 209 Resources Assigned

McFarland – 4 Crews, 3 Engines (all types), 1 Dozer, 2 Water Tenders

Black Canyon – 2 Engines, 1 Dozer, 1 Water Tender

Reach – 15 Crews (all types), 73 Engines (all types), 10 Dozers, 6 Helicopters (all types), 2 Air Tankers

First Creek – No information

The Templin Type 1 Incident Management Team is in-briefed and begins to acquire intelligence on the incidents.

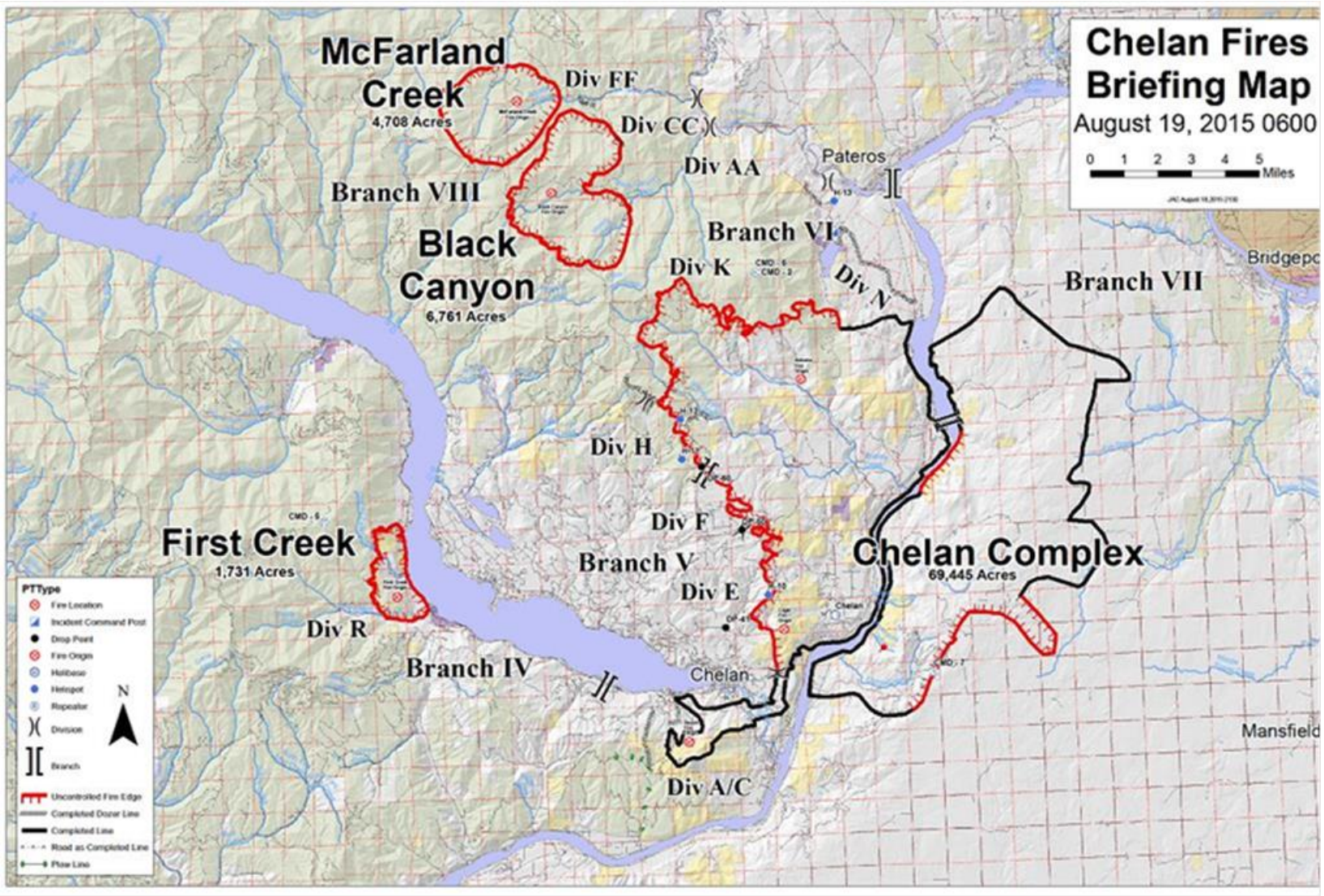
August 19

800 Residents Remain Evacuated; 462 Structures Threatened

Strong winds—as predicted by the previous day's Red Flag Warning—impacted the fire area today.

The 6 a.m. August 19 Chelan Complex "Briefing Map" (see next page) shows the progress that had been made to date on the containment of the Chelan Complex, McFarland, Black Canyon, and First Creek fires.

While evacuation notices have been lifted in some areas—including Union Valley—approximately 800 residents remain evacuated.



This map shows the various fires' status as of 6 a.m. on August 19.
The black lines represent completed fire line.
The red lines represent the uncontrolled fire edge.

McFarland and Black Canyon Fires Threaten 462 Structures
The McFarland and Black Canyon fires—anticipated to burn together today—are threatening approximately 462 structures. The Alta Lake and Goat Mountain area, including a radio transmission tower, are also threatened. A Level 3 ("Evacuate Now") evacuation remains in place in these areas.

Critical resource needs between all fires remains constant. To address short-term needs, the sharing of resources continues to be a common practice. Keeping this practice in mind, here is the information from the ICS 209s for this day:

McFarland – No information

Black Canyon – 2 Crews (all types), 8 Engines (all types), 1 Helicopter, 2 Dozers, 3 Water Tenders

Reach – 18 Crews (all types), 60 Engines (all types), 1 Dozer, 6 Helicopters (all types), 12 Air Tankers

First Creek – No information

August 20

Extreme Fire Behavior Still Anticipated;
Level 3 Evacuations in Place throughout the Chelan Area

Good progress is made on the Reach Fire on the east side of the Columbia River. While crews continue working to secure the fire's west side, the Reach and Black Canyon fires joined today—creating one Large Fire.

Red Flag Warning weather conditions impacted the fire area today, causing significant fire spread. However, even with the anticipated extreme fire behavior and Level 3 Evacuations in place throughout the Chelan area, the Chelan Complex fires are the Pacific Northwest Region's number 20 through 24 priority fires—based on the August 20 National Incident Situation Report.

While the number of commercial properties that have been damaged or destroyed are not yet available, residences and other structures along Highway 97, infrastructure (power, water, communication), and businesses remain threatened.

Resources reported from the 209s are indicated below. However, as previously stated, the sharing of resources between fires is a common practice to address short term need. Critical resource needs between all fires remains constant:

McFarland – (Combined with the Black Canyon Fire.)

Black Canyon – 2 Crews (all types), 8 Engines (all types), 1 Helicopter, 2 Dozers, 3 Water Tenders

Reach – 18 Crews (all types), 60 Engines (all types), 6 Helicopters (all types), 1 Dozer, 12 Air Tankers

First Creek – No information

Transfer of command to the Southwest Area Type 1 Incident Management Team is scheduled tomorrow for both the Chelan Complex and Wolverine/Blankenship fires.

August 21

The Five Original Fires Burn Together into the "Chelan Complex";
Critical Resource Need: Protecting Structures on the First Creek Fire

Transfer of command to the Southwest Area Type 1 Incident Management Team occurs this morning.

This area's five original fires have all burned together into a single fire that—from this point forward—will be referred to as the Chelan Complex.

Firefighters protecting homes in the Morning Sun Estates from the Chelan Complex on August 22.
Photo by Kari Greer, U.S. Forest Service

The incoming Incident Commander states that any one of the fires under his command has enough complexity to be managed by a National Incident Management Team.

The First Creek Fire remains a stand-alone fire. Receiving the services of a Very Large Air Tanker (VLAT) is identified as a need to protect structures on this fire. Critical resource needs also begin to focus on Type 1 Crews to support burning around structures associated with the First Creek Fire. Containment is identified at only two percent on this stand-alone fire.

The Wildland Fire Decision Support System (WFDSS) decision is published for the Reach Fire. During this day, progress continues on the Reach Fire with both direct and indirect dozer line construction continuing. Lake Chelan State Park is added to the values at risk on the Reach Fire.

Resources Committed to the Chelan Complex and First Creek Fire per the ICS 209s:

Chelan Complex – 16 Crews (all types), 53 Engines (all types), 6 Helicopters, 14 Dozers

First Creek – No information

August 22

Hotshot Crews and Type 1 Helicopter Needed to Help Save Residences

The ICS 209 indicates that Interagency Hotshot Crews (IHC) are needed for seven days along with an additional Type 1 Helicopter as a window of opportunity exists in the next 24-48 hours to implement a strategy to contain and control the First Creek Fire.

Discussions between Operations and two IHC Superintendents indicate that—with these two additional suppression resources—terrain features would allow for successful line construction, burning and holding. (These crews were eventually received. By August 28, the indirect fire line from Lake Chelan west to the Shady Pass Road had been completed.)

On the Chelan Complex, indirect fire line is completed northwest from the Columbia River to Alta Lake and beyond. This fire line now serves as the primary future control point to check the fire's spread to the northeast.

Resources assigned per the ICS 209s (sharing of resources continues between all three fires currently managed by the Southwest Area Type 1 Incident Management Team):

Chelan Complex – 16 Crews (all types), 53 Engines (all types), 6 Helicopters, 11 Dozers

First Creek – No information

August 23

Number of Destroyed and Damaged Homes Identified

The Wildland Fire Decision Support System (WFDSS) decision is published for the First Creek Fire.

While a Red Flag Warning continues to influence the fire area, damage assessment personnel are able to access portions of the Chelan Complex and First Creek Fire.

Numbers of Damaged and Destroyed Structures are Updated on Both Fires:

Chelan Complex – 44 structures (all types) destroyed; 0 damaged

First Creek Fire – 19 structures (all types) destroyed, 22 damaged.

Resource needs and assignments remain constant with previous ICS 209s.

August 24-26

Fire Lines Help to Halt Spread of First Creek Fire; Chelan Complex Threatening Alta Lake Area

A series of indirect and contingency lines are under construction on the First Creek Fire.

Work on opening the Shady Ridge fuel break nears completion. This ridge serves as a contingency line to keep the First Creek Fire south of 25 Mile Camp—the last viable option for halting fire spread south of the Wolverine Fire.

An indirect line now successfully ties Forest Service Road 125 down to Lake Chelan. This indirect line uses a series of other roads to connect the primary ridge west of the fire to Lake Chelan.

On August 26, a Water Tender rollover with an associated minor injury is reported on the First Creek Fire.

As the fire edge is secured on the western side of the Chelan Complex, the threat to structures in the Chelan area continues to be reduced. However, on August 25, fire activity increases on this fire's eastern

flank, threatening the Alta Lake area—as well as the areas north of the head of the fire where other structures are located.

Resource sharing continues between all fires under the command of Southwest Area Type 1 Incident Management Team. Mid-level overhead positions, Division Supervisors, and Safety Officers remain difficult to fill.

Current Resource Assignments as of the August 26 ICS 209

Chelan Complex – 8 Crews (all types), 62 Engines (all types), 8 Helicopters, 10 Dozers

First Creek – No information

August 27-28

"Evacuate Now" Order Given for People in the Gold Creek and McFarland Creek Areas; First Creek Fire Continues Spreading West Toward Slide Ridge Road

On the Chelan Complex, a Level 3 ("Evacuate Now") evacuation order is posted August 28 for the Gold Creek and McFarland Creek areas. Evacuations are also in place for the Alta Lake and Chelan areas.

Infrastructure threatened by the fire includes communication towers that provide service for the region. The Washington Incident Management Team #3, who has been serving as a "Branch" Incident Management Team in the Alta Lake area will time out on August 28. The California Type 1 Incident Management Team #5 has arrived at the incident, with a planned transition to the Chelan Complex on August 30.

The First Creek Fire continues to spread west toward Slide Ridge Road. However, the easterly progression to the shore of Lake Chelan has been minimal for several days.

Resources assigned to the Chelan Complex remain consistent with previous ICS 209 reports. Critical resource needs also remain consistent with past ICS 209s.

August 29

Both Fires Receive Precipitation

Precipitation is received today on the Chelan Complex. (Fire size at the time of the precipitation is 93,079 acres.)

This precipitation allows the Level 3 Evacuation for Gold Creek to be reduced to a Level 2 ("Be Set to Evacuate"). However, a new Level 2 Evacuation order is initiated for the Methow Valley area, including Alta Lake and Carlton.

Precipitation is also received on the First Creek Fire. Objectives for the day are to hold and secure all existing control lines.

Staffing on the Chelan Complex is comparable with previous days. For the first time, the First Creek Fire indicated specific resources on its ICS 209 report:

First Creek Fire – 6 Crews (all types), 19 Engines, Miscellaneous Equipment

August 30

Fire Behavior is Moderating;
Minimal Fire Activity Reported on First Creek Fire

Moderating fire behavior has led to more accurate mapping of the Chelan Complex that indicates a reduction in the number of acres previously reported.

A transition of the Chelan Complex to California Incident Management Team #5 is scheduled for August 31. This team will also be managing the Okanogan Complex.

The Southwest Area Incident Management Team #1 will retain command of the Wolverine and First Creek fires. Resources assigned to the Chelan Complex remain consistent with previous ICS 209s.

Minimal fire activity is reported on the First Creek Fire. Holding and securing existing portions of fire line are the operational objectives.

August 31-September 9

Minimal Fire Activity on Both Fires;
Updated Mapping Shows a Reduction in Actual Fire Sizes

Transition of command on the Chelan Complex to California Incident Management Team #5 occurs on August 31.

Minimal fire activity occurs on both the Chelan Complex and the First Creek Fire.

Because the reduced fire activity allows for improved mapping, both fires now report a reduction of acreage.

Lessons Learned

Insights Voiced
by Incident Commanders

1. Creating a "complex" earlier in the fire's evolution would have avoided a multitude of administrative impacts on the Incident Management Teams.

The teams were required to complete multiple ICS 209s, track multiple fire codes, and track resources individually by individual incidents.

2. The use of a Type 2 Incident Management Team without its Incident Commander—who was assigned as a "Branch" on the Chelan Complex—did not work well.

It would be more effective to have the IMT in command establish a Branch with direct lines of supervision back to the IC in command rather than establishing a separate IMT as a Branch.

Firefighters conduct a firing operation to protect homes from the Chelan Complex.
Photo by Kari Greer, U.S. Forest Service.

Okanogan Complex

Date of Ignition

[Note: Fires within this complex started on August 13 and 14 and were placed in a complex on August 17.]

Cause

Lightning

Land Ownership at Fire Origin

Nine Mile – Private/Washington DNR
Beaver Lake – Okanogan-Wenatchee NF
Lime Belt – Private/DNR
Tunk Block – Private/Washington DNR and Colville Agency
Twisp – Private/Washington DNR

Responding Initial Attack Resources

Lime Belt – T2 helicopter, 3 rappellers and an IC
Tunk Block – 2 T6 engines, 1 T2 helicopter, 1 IC
Beaver Lake – 1 IC, 3 T6 engines
(IA resources are approximate as there were many fire starts and movement of resources.)

Preparedness Level at Time of Ignition

National: PL 5
Local: PL 5

Acres Burned

304,782*

Estimated Cost

(Late September)
$62,500,000*
Beaver Lake/Lime Belt: $40,800,000
Tunk Block: $11,350,000
Twisp River: $4,100,00

Land Jurisdictions

U.S. Forest Service, Washington State Department of Natural Resources, Colville Agency

Resources at Incident Peak

Total Personnel: 1,918,
Crews: 37
Engines: 184,
Helicopters: 7

Structures Destroyed

195 Total
(Residences: 123 Others: 72)

Cooperators

Washington State Department of Natural Resources, Okanogan-Wenatchee National Forest, Spokane District BLM, Colville Agency, Okanogan Fire Districts 3, 4, 6, 7, 8, 9, 16, and Conconully Fire Department

** Costs and acres are for the individual fires compiled for this report. Fires moved in and out of complexes during their management.*

Appendix T – Okanogan Complex

For Interactive Map:
http://arcg.is/1NlApes

Notable Successes

Primary Residences Saved

No structures were lost during the Lime Belt Fire's Initial Attack and first 48 hours.

Once the Type 2 Incident Management Team had taken command, the fire made a very active run. An old historic barn was lost. However, dozens of primary residences were saved through the use of retardant.

Effective Communications

There were effective communications and sharing of critical firefighting resources between the Okanogan Complex and Chelan Complex throughout the August 20 Okanogan Complex Incident Management Team transition between the incoming T1 IMT and the outgoing T2 IMT.

Local Fire Department Collaboration

Local fire departments provided Initial Attack resources for the Nine Mile Fire and stayed on this fire under the Okanogan Complex oversight until it was contained. This allowed critical resources to be available to respond to the Okanogan Complex.

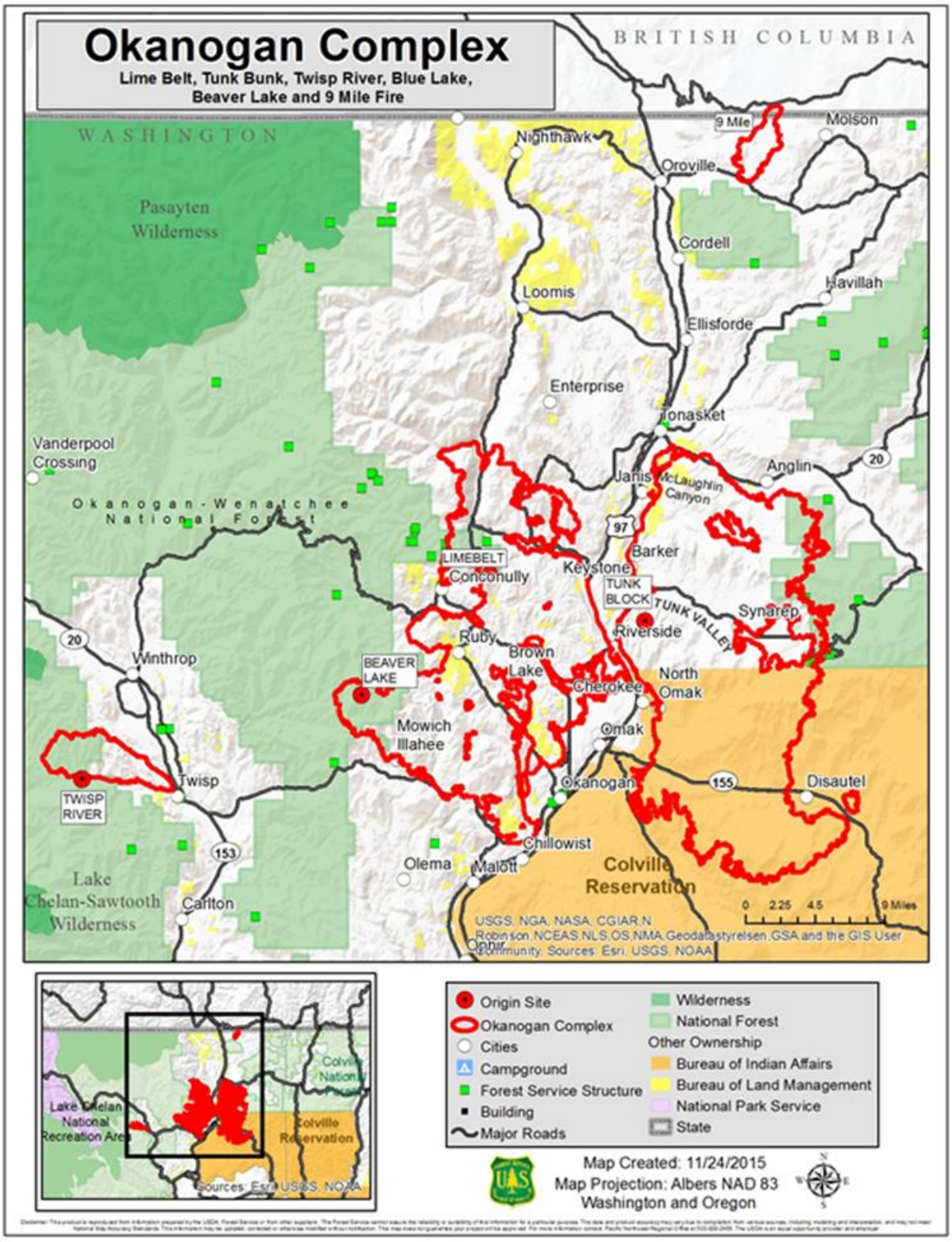
Lightning Starts Eight Fires

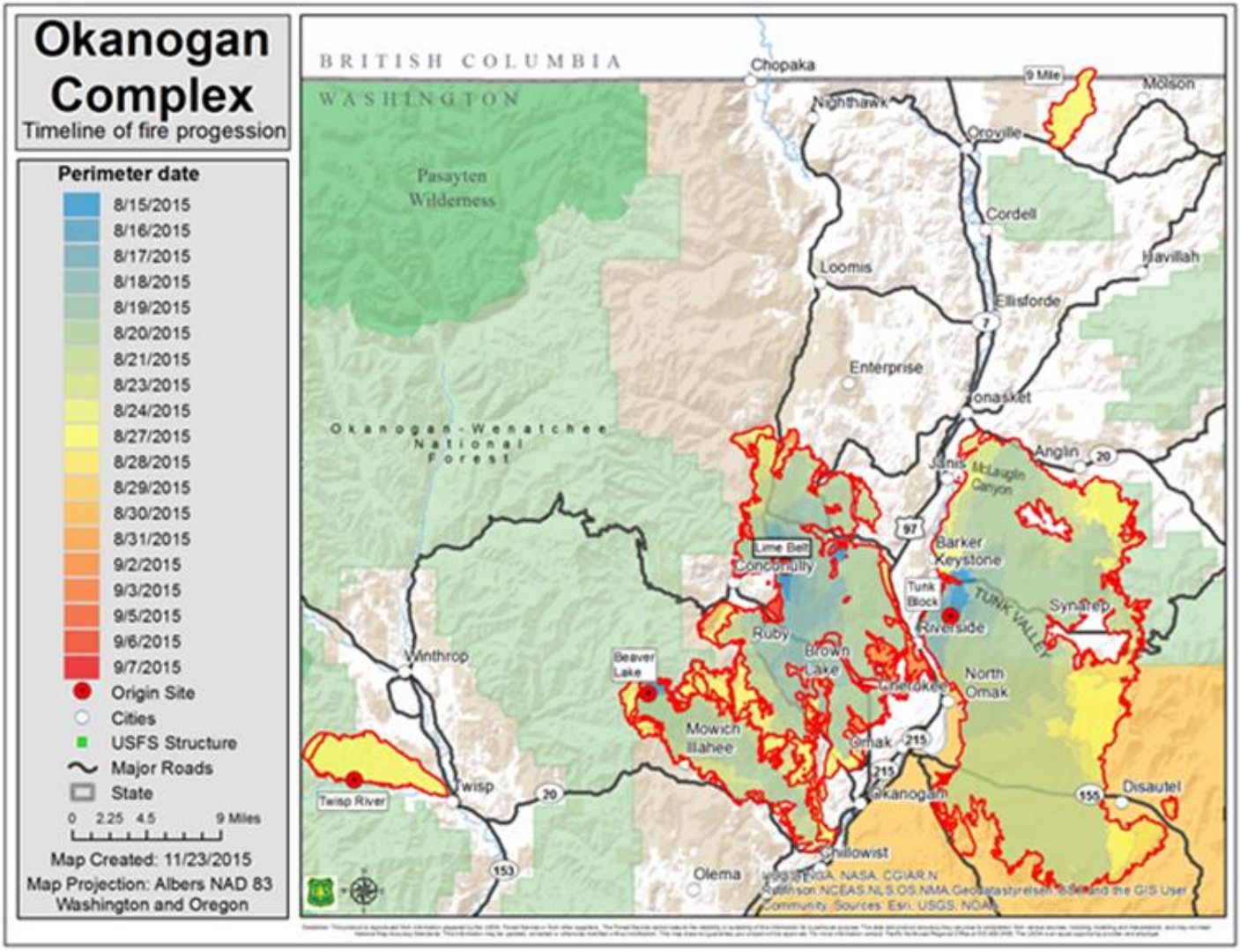
On the evening of August 13 and early morning August 14, a lightning event started a number of fires. There were at least eight named fires that were originally part of the Okanogan Complex.

August 13

The Nine Mile Fire, located three miles northeast of the town of Oroville, Washington, started on August 13. The fire had fire line constructed all around it by the time the Washington Interagency Incident Management Team #2 took command on August 15. It had burned 4,673 acres and was 30 percent contained.

The fire moved beyond the United States border into British Columbia, burning 120 acres (48.5 hectares). Approximately 130 fire personnel were assigned to this fire with additional resources ordered. A shower from a thunderstorm the evening of the August 15 diminished activity and aided containment of the fire.


Okanogan Complex
Lime Belt, Tunk Bunk, Twisp River, Blue Lake, Beaver Lake and 9 Mile Fire
BRITISH COLUMBIA
WASHINGTON
Pasayten Wilderness
Nighthawk
9 Mile
Molson
Oroville
Cordell
Havillah
Loomis
Ellisforde
Enterprise
Tonasket
Vanderpool Crossing
Janis
McLaughlin Canyon
Anglin
20
Okanogan-Wenatchee National Forest
97
Barker
LIMEBELT
Conconully
Keystone
TUNK BLOCK
TUNK VALLEY
Synarep
Riverside
Ruby
Brown Lake
Winthrop
BEAVER LAKE
Cherokee
North Omak
Omak
Mowich Illahee
Twisp
TWISP RIVER
Okanogan
155
Disautel
Chillowist
153
Olema
Malott
Colville Reservation
Lake Chelan-Sawtooth Wilderness
Carlton
Oroville
0 2.25 4.5 9 Miles
USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, GSA and the GIS User Community, Sources: Esri, USGS, NOAA
Lake Chelan National Recreation Area
Colville Reservation
Sources: Esri, USGS, NOAA
Origin Site
Okanogan Complex
Cities
Campground
Forest Service Structure
Building
Major Roads
Wilderness
National Forest
Other Ownership
Bureau of Indian Affairs
Bureau of Land Management
National Park Service
State
Map Created: 11/24/2015
Map Projection: Albers NAD 83
Washington and Oregon
N
W
E
S


Okanogan Complex
Timeline of fire progession
Perimeter date
8/15/2015
8/16/2015
8/17/2015
8/18/2015
8/19/2015
8/20/2015
8/21/2015
8/23/2015
8/24/2015
8/27/2015
8/28/2015
8/29/2015
8/30/2015
8/31/2015
9/2/2015
9/3/2015
9/5/2015
9/6/2015
9/7/2015
Origin Site
Cities
USFS Structure
Major Roads
State
0 2.25 4.5 9 Miles
Map Created: 11/23/2015
Map Projection: Albers NAD 83
Washington and Oregon
BRITISH COLUMBIA
WASHINGTON
Chopaka
Nighthawk
Oroville
9 Mile
Molson
Pasayten Wilderness
Cordell
Loomis
Havillah
Ellisforde
Enterprise
Okanogan-Wenatchee National Forest
Anglin
McLaughlin Canyon
Lime Belt
Barker
Keystone
Tunk Block
TUNK VALLEY
Synarep
Riverside
Ruby
Brown Lake
Winthrop
Beaver Lake
North Omak
Cherokee
Mowich
Omak
Twisp
Twisp River
Okanogan
Disautel
Chiliowist
Olema

August 14 Lime Belt Fire

For Interactive Map: http://arcg.is/1MZWFXL

At 6:59 a.m. on August 14, Dispatch received a report of smoke on Schalow Road near Conconully, Washington. The local Initial Attack Incident Commander discovered two fires within one-half mile of each other. Located along the same ridgeline, they totaled approximately 10-15 acres.

The larger of the two fires, the Lime Belt Fire, was burning actively on all flanks. The head of the fire was exhibiting group torching and spotting 100 to 300 feet toward the smaller fire.

The initial dispatch for the fires was 1 Rappel Type 2 Helicopter. This Helicopter with five crew members was dispatched at 1 p.m.

The Initial Attack involved anchoring and flanking the fire, but the Initial Attack Incident Commander said he soon realized "that with only the five of us and 1 Type 2 helicopter with bucket, we were not going to be very successful—so we dropped back to point protection". After the first hour, it was apparent that the Initial Attack efforts would not contain the fires. By mid-afternoon, for safety concerns, erratic fire behavior forced the rappellers "into-the-black", a safe already burned out area. Firefighters were removed and regrouped at the heel of the fire. By the end of the day the fire was estimated at 700 acres.

Tunk Block Fire Summary

- ✓ Local Fire District manages Initial Attack and calls for critical resources.
- ✓ Both human life and structures are at imminent risk.
- ✓ During the Tunk Block Fire Initial Attack burn over, several crew members receive minor injuries.
- ✓ Type 3 Incident Commander transitions in and calls in additional resources.
- ✓ Three days later, a Type 1 Incident Management Team takes command.
- ✓ Numerous communities are evacuated at peak of incident.
- ✓ 3,000 residences are threatened at peak of incident and for the next two weeks.
- ✓ Numerous structures are damaged or destroyed.
- ✓ Initially, the Tunk Block Fire becomes part of the Okanogan Complex, then becomes part of the North Star Fire.

Tunk Block Fire

For Interactive Map: http://arcg.is/1OAkata

At 2:03 p.m., the Tunk Block Fire was started by lightning near a populated area located just outside the Confederated Tribes of the Colville Reservation. By August 21, weather conditions had pushed the Tunk Block Fire onto the Reservation.

The Initial Attack was staffed by local fire department crews who took the lead on the ground—attempting to locate and control the fire with no available air support. All aircraft were grounded due to high winds.

By mid-afternoon, Air Tankers were requested to protect structures. However, no Air Tankers were available as winds in excess of 45 mph had grounded all aircraft. At 4:02 p.m. the fire was 25 acres and was torching, smoldering, and creeping. More Hand Crews and air support were still needed.

By late afternoon, critical concerns arose about the fire threatening structures in populated areas. Mass notifications of evacuations went out to the McLaughlin Canyon area. Heavy Air Tankers were again requested to support these evacuations. The fire was expected to arrive at the structures in 1½ hours.

The Initial Attack Incident Commander requested two more Dozers. He was attempting to keep the fire away from structures. For the night shift, the IC put new operators on the Dozers. The fire was now within a few miles of Confederated Tribes of the Colville Reservation lands.

Beaver Lake Fire

For Interactive Map: http://arcg.is/1Towoqt

The Beaver Lake Fire was discovered at 3:36 p.m. on August 14 on Okanogan National Forest lands. At the time of the initiation of the first ICS 209 report, the fire was 800 acres. There were 3 T6 engines assigned to the fire with a Type 3 IC. Some precipitation from a thunder cell dampened fire spread for a very short time. By morning the following day, the fire was estimated at over 1,000 acres.

August 15

Just past midnight on August 15, the Tunk Block Incident Commander indicated no needs at that time. At 8:44 a.m., the fire transitioned to a Type 3 Incident Management Team.

The Washington Interagency Incident Management Team #2 (IMT2) shadowed the Type 3 Incident Management Team for eventual assumption of command for the Okanogan Complex. When this team took command, the combined acreage of Blue Lake and Tunk Block fires was 2,805 acres. Fire behavior was erratic and extreme with great potential for substantial runs. Evacuations were in progress.

Daybreak brought a very slight rain but it did not impede the spread of the Lime Belt Fire. The Initial Attack IC called for Level 1 evacuations—*"Be aware of the situation: BE READY*".

At 4:30 p.m. when the IMT2 Incident Commander in-briefed at the Tonasket District Office, the fire was already at 800 acres. This Incident Commander's objectives were to see what opportunities existed to contain/control the fire, attempt to minimize structure damage, and provide leadership.

At 5:30 p.m. when he arrived on scene, the fire had grown to 1,200 acres. They were in Extended Attack. An indirect suppression strategy had been established. Because of a shortage of firefighting resources, point protection (rather than full perimeter containment) was the initial strategy implemented by the IMT2. The fire was burning very actively on all flanks in light flashy fuels—burning toward heavier fuels. The Incident Commander requested more Hand Crews (for a total of eight), Division Supervisors, Task Force Leaders, Heavy Equipment, Heavy Equipment Bosses, Engines, and a Type 2 Safety Officer.

A "point protection" strategy identifies highest values and protects them as the fire moves past. This was used frequently on fires in August because there were insufficient firefighting resources to stop the spread of many of the fast moving fires.

The initial threats were determined to be target at natural resources and firefighter safety. Trigger points were set for notifications to the Okanogan County Sheriff's department for evacuations for most communities adjacent to the area of the fire. The first evacuations—for the community of Conconully—were identified by the Initial Attack Incident Commander to extend into adjacent subdivisions.

Threats Exist to All Conconully Residences

The fire was reported at 2,560 acres by 7:20 pm. The fire made an approximate thee-mile run under northwest winds coupled with gusty downdrafts from thunderstorms. Threats existed to all residences in and around Conconully.

Over the next 24 hours, the Lime Belt Fire remained active. At this point, the Lime Belt Fire was added to the Okanogan Complex of fires.

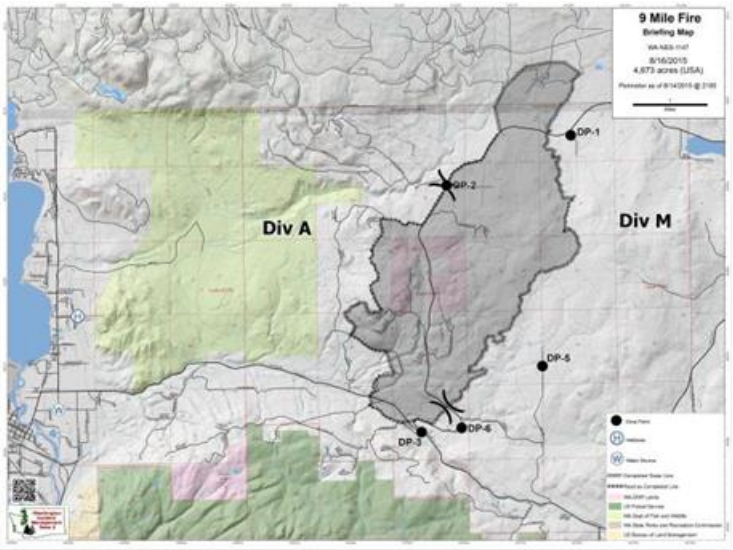
Optimum Strategy
At 6 a.m. on August 15, the Washington Incident Management Team #2 took command of the Nine Mile Fire. Before taking command of the Okanogan Complex, the IC met with the Washington State Department of Natural Resources, the Complex's Initial Attack Incident Commander, representatives from the Bureau of Land Management, Okanogan-Wenatchee National Forest, and others to engage in strategy discussions.

It was agreed that an optimum strategy would be to move a Type 3 Incident Management Team into Black Canyon and re-allocate personnel and resources throughout the area by dividing-up the individual fires and their personnel.

Managing agencies included the Washington State Department of Natural Resource, Okanogan Fire District 11, Okanogan County Sheriff's Office, and Okanogan County Emergency Management. (The cause of Nine Mile Fire is under investigation by the Washington State Department of Natural Resources. The fire was not caused by a plane crash, as was initially reported.)

Local Initial Attack resources diligently worked to gain access into the fire area and were successful in establishing a line around the entire fire perimeter.

On the night of August 15, showers and thunderstorms diminished over the fire. Two days later, another weak cold front moved in from the northwest. This front is expected to be dry and will produce breezy northerly winds for the afternoon. Above normal temperatures and dry conditions will return during the middle of next week.



This Nine Mile map displays the fire's perimeter and the acreage burned in British Columbia.

A new Washington State Department of Natural Resources Incident Commander and a Short Type 2 Incident Management Team (with 27 personnel) were left to manage the Nine Mile Fire on the Canadian border. The DNR redirected one Incident Commander to the Chelan Complex and another assumed command of the Black Canyon Fire, part of the Chelan Complex.

The U.S. Forest Service was simultaneously engaged in wildfires including the Beaver Lake and the rapidly expanding Lime Belt and Tunk Block fires. All of these fires eventually became part of the Okanogan Complex.

August 16
By August 16, the Beaver Lake Fire was 971 acres with the addition of a Dozer to the resource mix.

August 17
Complex Management Expands, Type 2 Incident Management Team Assumes Command
The Washington Interagency Incident Management Team #2 took command of the Okanogan Complex at

"Although the fire was 6,500 acres at transition on August 17, we were successful in keeping both firefighters and the public safe while we managed this incident."

Lime Belt Fire Type 3 Incident Commander

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6 a.m. on August 17. When they assumed command they had the following incidents under their management:

Nine Mile Fire: 4,704 acres—90% contained

Lime Belt Fire: 3,443 acres—25% contained

Beaver Lake Fire: 723 acres—0% contained

Tunk Block Fire: 2,744 acres—20% contained

Blue Lake Fire: 823 acres—40%

Issues, Concerns, and Challenges

Critically needed resources were not available throughout the Region.

Hot, dry weather and high winds allowed several fires to grow.

Although considered part of the Okanogan Complex, several fires were either consumed by another of the Okanogan Complex's fires or put out before the Okanogan Complex was named (such as the Dunn and Paradise fires).

August 17 and 18

The Beaver Lake Fire was placed into the Okanogan Complex the morning of August 17.

The Washington Incident Management Team #2 Incident Commander assumed command of the Okanogan Complex at 6 a.m. on August 17.

The situation with the five fires was rapidly deteriorating with homes threatened and evacuation requirements expanding. Both of these days experienced Red Flag conditions of low relative humidity and high winds. The Washington State Fire Service Mobilization Plan was requested for support to structure protection on August 18. In addition, by August 18, the Blue Lake Fire merged with the Lime Belt Fire.

August 19

Twisp River Fire

For Interactive Map:
http://arcg.is/1OAjuE4

At 12:38 p.m. on August 19, the initial incident report call came in to the Okanogan County Sheriff's Office of a two-acre fire which would become known as the Twisp River Fire. The Twisp River Fire started about five miles west of the town of Twisp in the vicinity of mixed fire protection lands. As a result, multiple agencies were responsible for managing the fire.

Twisp River Fire by Katie Swanson. Twispofate Blog.

The Rural District 6 Fire Department received a dispatch at 12:42 p.m. The fire chief deployed two Type 3 Engines, two Type 2 Tactical Tenders, three Type 5 Engines, and three Type 1 Engines.

The Initial Attack Incident Commander requested a Heavy Air Tanker, a Helicopter, and Air Attack.

The first firefighters on scene stated they saw three- to four-foot flame lengths at the head of the fire. The fire was terrain driven; the wind was light out of the southeast; and the fire was roughly two to three acres in size.

By 12:55 p.m., 20 homes were threatened and evacuations had occurred. Four minutes later, at 12:59, the fire chief requested a Helicopter ASAP.

At 1 p.m., the Okanogan-Wenatchee National Forest responded by dispatching four overhead (including a Type 3 Incident Commander Trainee), four Engines, and one Crew. The Forest Service Battalion Chief was informed that this was a Washington State Department of Natural Resources fire.

By 1:14 p.m., the fire was running, spotting, and torching with more than 20 structures threatened.

At 1:17 p.m., a Washington DNR Type 3 Incident Commander was on scene. Shortly thereafter, Unified Command had been established with the Forest Service, Washington DNR, and Okanogan Fire District 6. The fire was reported to be approximately 20 acres.

According to the *"Twisp River Fire Fatalities and Entrapments Learning Review Status Report"* released November 18, 2015 [http://www.wildfirelessons.net/viewdocument/?DocumentKey=c221a055-a972-478c-be5c-9a16c2d5929c], the following Initial and Extended Attack resources were being managed by the three Incident Commanders:

- 3 structure (Type 1) Engines
- 2 medium (Type 3) structure/wildland Engines
- 9 light (Type 6) wildland Engines
- 2 Water Tenders
- 2 Fire District 6 Division Chiefs
- 2 Dozers with crew (a crew of 2 for 1 Dozer; a crew of 3 for the other Dozer)
- 1 Hand Crew (16 people)
- 1 4-person Helitack Crew
- 1 Light Helicopter
- 2 Medium Helicopters (one did not arrive on scene until after the entrapment)
- 1 Heavy Helicopter
- 1 Air Attack (to provide eyes over the fire)
- 3 Heavy Air Tankers (carrying retardant)
- 1 Lead Plane (to help guide the retardant tankers)

By almost 3 p.m. the Forest Service Incident Commander Trainee sized-up the fire:

> *"At this time at least 50-plus acres with running, torching, spotting. There are 20-plus homes directly threatened in imminent danger at head of fire. Need fixed-wing heavy aircraft for added structure protection. If no heavy aircraft are available, we will have another 100-plus structures/homes in imminent danger in a box canyon. Rotors and AA are currently working the left flank to keep the fire from progressing up Twisp River. We have multiple crews and engines working at structure protection at this time. We would like a second heavy aircraft."*

Shortly after this size-up, there was a report of an entrapment on the fire's east flank. Actions occurred quickly over the next hour.

At 3:08 p.m. the Forest Service Incident Commander Trainee ordered all resources to disengage from the fire and head to the staging area. The Incident Commanders alerted dispatch that they had an entrapment on the fire.

The fire continued to move with heavy use of aircraft and assignment/reassignment of Engines.

Later that afternoon, it was confirmed that three firefighters had perished.

A Type 1 Incident Management Team was ordered to take command of the fire.

August 19 and 20

The Twisp River Fire was added to the Okanogan Complex..

By August 19, there had been general disengagement from most of the fires. Containment lines had been breached except for on the Nine Mile Fire. The Nine Mile Fire was holding in place and would mainly be managed for mop-up and suppression repair operations.

By the evening of August 19, more than 54,000 acres had been burned. By the next evening, the number more than doubled to 124,000 acres. There were not enough firefighters to do any direct or indirect perimeter control. All efforts were focused on evacuation and point protection (residences, commercial buildings, and infrastructure).

The extent of the Red Flag Warning for dangerous fire weather conditions on August 19.

Recap of information from the Incident Status Summary ICS-209 as posted on August 20:

- **Tunk Block Fire** – Long-range spotting from wind-driven runs 2 miles to south and 7 miles to north. Fire crossed Hwy 20 up to Havilland Road in Tonasket.
- **Lime Belt/Blue Lake Fire** – Wind-driven fire moved southeast and crossed Salmon Creek Road. Point protection of structures in rural areas of Omak.
- **Beaver Lake Fire** – Significant overnight growth to the southeast from spotting and high winds. Fire is currently at Hwy 20.
- **Twisp River Fire** – Fire developed rapidly in windy conditions and light fuels yesterday. Working structure protection along the Twisp River Road. Fire is moving down valley.
- **Homes Threatened** – Approximately 5,140 primary residences are within two miles of current fire perimeters (unknown number of outbuildings).

On August 19, the Okanogan Complex is 54,838 acres.

By August 22, it is more than 227,000 acres.

The situation by August 20:

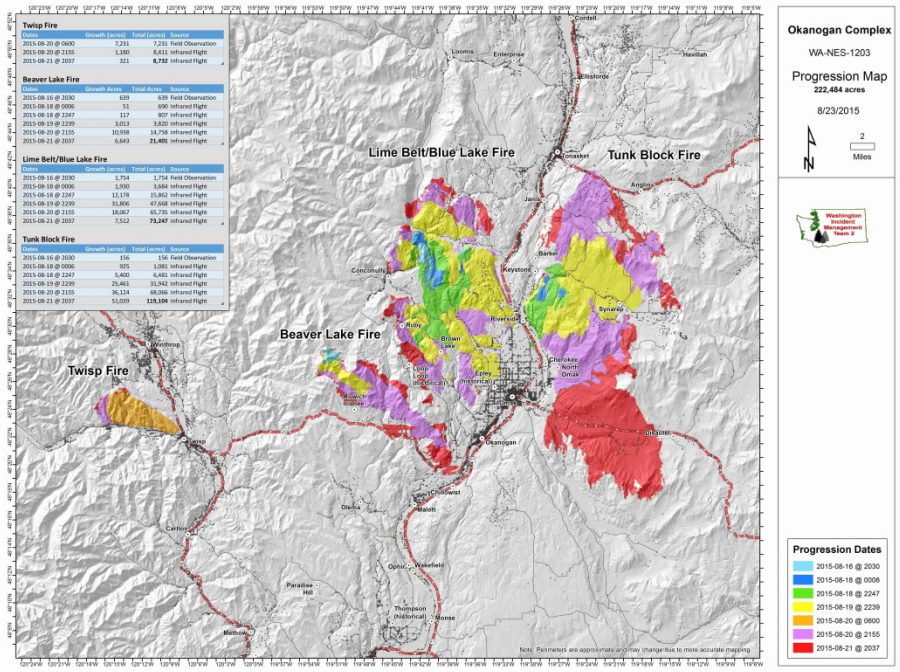
Nine Mile Fire: 4,720 acres – 95% contained
Lime Belt Fire: 52,903 acres – 28% contained
Beaver Lake Fire: 12,617 acres – 0% contained
Tunk Block Fire: 45,337 acres – 30% contained
Twisp River Fire: would be adding an additional 7,868 acres

August 21 to August 28

The effects of the prolonged drought and the series of Red Flag Warning days played significantly into the explosive growth of the Okanogan Complex. Total acreage at the beginning of this time period on August 20 was 124,083 acres. By the close of business on August 28, 302,225 acres had been officially

reported. Cold front passages and/or Red Flag Warnings for low relative humidity, high winds and instability were reported for six of these eight days. The final wind event in front of a system that brought rain also had strong gusty winds.

The ongoing severe wildfire event of the Pacific Northwest challenged managers with getting the right number of resources at the right place at the right time. As there were not enough firefighters and fire apparatus for making a major effect on the expanding perimeter, all efforts for the first several days were on structure protection. By August 23, containment lines were again breached due to low relative humidity and high winds.



Fire progression map produced August 23. Note the red and purple that displays the rapid spread on August 21 and 22.

Summary Facts

August 19

- Three firefighters perish.

August 21

- 162,315 acres burned.
- Transfer of command to a Type 1 Incident Management Team.
- 18 homes reported lost (but numbers hard to determine as it is too dangerous to get an appropriate assessment).
- Spotting two miles ahead of the fire.
- Widespread power outages.
- Tunk Block Fire spreads 7 miles to the south and 2 miles to the north.

August 22

- 227,206 acres burned.
- Road closures throughout the complex.
- 3,800 residences reported without power.
- Continued rapid fire spread and spotting.
- Structure loss and evacuations continue.

August 23

- 244,570 acres burned.
- High probability of ignition leads to spot fires starting new fires with widespread spotting across containment lines.

August 24

- 258,339 acres burned.
- 7,000 structures evacuated.
- Lime Belt and Beaver Lake fires merge.
- More formal structure loss assessment underway with Okanogan County Assessor's Office.
- Concerns for North Star Fire, located to the east of Tunk Block Fire, and Tunk Block Fire burning together. IMTs coordinate their efforts.

The Tunk Block Fire on August 27. Photo by Dave Fauss.

August 25

- 261,650 acres burned.
- 39 homes accounted for as being lost to fire.
- Spotting over containment lines still occurring.

August 26

- 280,267 acres burned.
- Twisp River Fire completely lined, 85% contained.
- Another Red Flag Warning for low relative humidity high, gusty winds.
- Assessment of structure loss continues. 68 homes accounted for as being lost to fire.

August 27

- 292,512 acres burned.
- Fire spread slows down due to heavy inversion of smoke but gusty winds accompanied the lifting of the inversion. Red Flag Warning again for gusty winds.
- 94 homes and 63 out-buildings reported lost to fires.

August 28

- 302,225 acres burned.
- Increased relative humidity with dim cloud cover significantly moderating fire behavior. Rain in the forecast in two days.
- 123 homes and 72 out-buildings reported as lost to fires.
- Complex reaches the maximum number of resources it will have. There are 1,918 personnel assigned.

August 30

Transition and Slowed Fire Growth

The days of tremendous fire growth end as rain falls on August 30. California Incident Management Team #5 takes command of the Okanogan and Chelan complexes. The Tunk Block Fire is removed from the Okanogan Complex and assigned to the North Star Fire. Focus continues to be on protection of infrastructure and residences and control objectives.

Life, Property, and Structure Protection

By August 31, the protection of life, property, and structures continues to be the primary objective of this incident.

Fire suppression resources continue to provide point protection for a multitude of communities and residences. There were a total of 1,912 residential homes that had received Level 3 Evacuation notices—"*Evacuate immediately: GO*". Evacuation shelters had been established in Omak, Tunk Valley, and Tonasket.

In addition, closure orders were in place for a number of Tribal Forest lands and primary roads. Numerous evacuations occurred. Over the next two weeks, evacuation notices remained posted for four communities and their surrounding residences.

The Twisp River Fire was returned to local control on September 8. The fire was 11,222 acres and 98 percent contained.

The remaining fires were returned to their local units on September 26 at 97 percent containment. Sufficient rain and work provided the opportunity to return them to their local units with minimal opportunity for further spread or significant amounts of work to accomplish.