2018 Fire Season
Statewide Summary and Highlights

Oregon Department of Forestry
Fire Protection Division
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OREGON’S WILDLAND FIRE PROTECTION PROGRAM OVERVIEW

As Oregon’s largest fire department, ODF’s Fire Protection program protects 16 million acres of forest, a $60 billion asset. These lands consist of privately owned forests as well as some public lands, including state-owned forests and, by agreement, US Bureau of Land Management forests in western Oregon. ODF is also part of an extensive fire protection network that includes landowner resources, contract crews and aircraft, inmate crews, and agreements with public agencies across Oregon, the US and British Columbia.

ODF’s firefighting policy is straightforward: Put out fires quickly at the smallest possible size. ODF uses all its resources including district offices and guard stations across the state, high-leverage firefighting assets such as aircraft and the newest technology with real-time infrared mapping and smoke detection cameras.

2018 FIRE SEASON SUMMARY

Early fire detection, along with a well-coordinated aggressive, safe initial attack are the greatest response measures we have to minimizing our chances of large fires across Oregon’s landscape. We preposition initial attack engines and aviation assets to where we see the greatest risks. Our Incident Management Teams prepare to be ready when called. When fire season arrives, Oregon’s complete and coordinated protection system is in a state of full readiness with forest and range landowners, contractors, cooperating federal, state and local agencies aligned for quick response.

With above-average snowpack and precipitation this winter, the state recovered from previous years’ severe drought, and conditions started off favorably for an average fire season. Additionally, during the first half of June, much of the state experienced cool and moist conditions. However, from mid-June through much of September, temperatures spiked at times to record levels and fuel moistures dropped to near record or record levels. Much of the state received little or no rain during this period. As a result of the hot and dry conditions, in combination with lightning storms, fire activity increased significantly very quickly. Many of the fires this year threatened communities and homes this year and our local, regional, national and international partners supported firefighting all across the state.

The Graham Fire effectively started 2018 fire season for ODF, on June 21 from a lightning strike among over 7,000 strikes over two days in Central Oregon. From the start, it was a partnership fire with ODF Team 2 (Cline) and OSFM Green Team deployed in Conflagration, where the Governor authorizes state resources to participate in protecting lives and property (structures, homes) from wildfire. Wind was a driving factor of this fire, atop drying fuels, but despite its potential, ODF and OSFM forces stopped the fire at 2,175 total acres (1,053 ODF-protected acres).

In July, increased winds, hot and dry conditions, holdover lightning fires, and 4th of July fires had all contributed to increase fire activity, including the July 5th Klamathon Fire in California burning in very dry fuels south of the Oregon border. 2,220 acres of ODF-protected lands were impacted from this 38,050 acre fire.

Two major lightning events this season triggered intensive initial attack activity bursts and the establishment of several large fires on the landscape. In mid-July, a weekend lightning event with 2,815 strikes ignited hundreds of starts, at least 7 of which became large fires in southwest Oregon. In mid-August, another lightning event with 2,335 strikes ignited over 180 fires, this time focused in central and eastern Oregon. See Figure 2, Notable 2018 Fires and Lightning Events, and Figure 3, Mass emerging wildfire incidents as mapped August 17, 2018.

Partnerships shaped the season with the Garner Complex (7/15) near Grants Pass which had several scattered fires from lightning strikes (including the early Taylor Creek fire) and the Umpqua Complex with the Miles fire and other large fires. Some of the fires were managed by ODF Teams and some with Interagency Teams in Unified Command with ODF and Associations (Douglas Fire Protective Association and Coos Fire Protective Association).
The Klondike Fire also started from the July lightning event, in difficult wilderness terrain (this fire was also near the 2017 Chetco Bar fire footprint in southwest Oregon). This fire was managed by USFS with the Taylor Creek fire and the Klondike burned until season end.

By July 30, Fire danger was extreme in many ODF Forest Protection Districts, set up by one of the hottest months of July on record, and temperatures continued to rise over most of the region. See Figure 1, ODF Significant Fire Potential for large costly fires on July 24, 2018.

Following the July lightning event, Governor Brown declared a statewide State of Emergency due to the imminent threat of wildfire. This declaration made the National Guard available for firefighting. National Guard mobilizations included 441 Oregon National Guard firefighters forming 20 person hand crews, two deployments for CH-47 Chinook helicopters, one HH-60 Medivac helicopter, and one Lakota helicopter for tactical fire missions, as well as 156 traffic assistance point personnel.

Wasco County and wheat country in Oregon experienced an exceptionally severe wildfire season. Three very large successive fires ignited one after the other: the Substation Fire 7/17 (78,425 ac), the Long Hollow Fire 7/26 (33,451 ac), and the South Valley Fire 8/01 (20,026 ac). As soon as one was contained, the next blew up. Only the South Valley Fire was an ODF fire, but all hands were on deck in mutual aid for the fires in the area.

Through August, extreme fire potential conditions that contribute to large fire growth sustained elevated and record levels. In addition to hot temperatures, dry fuels and low humidity, in mid-August, another lightning event with 2,335 strikes ignited over 180 fires, this time focused in central and eastern Oregon. Most of these starts were caught at initial attack, but at least 8 large fires became established in central Oregon including Watson Creek, Stubblefield, Lone Rock, Jennies Peak and Kinzua Complex. Many of the large fires were on United States Forest Service (USFS) lands; with some large fires within complexes growing together and continuing to burn through the peak and shoulder of fire season. Meanwhile, even in northwest Oregon, the Terwilliger fire (8/19, 11,555 acres) established itself as a large USFS fire on the landscape.

According to the Northwest Interagency Coordination Center (NWCC), the region (Washington and Oregon) was at the highest National Preparedness Levels (PL) 4 and 5 for 47 days in the season. Preparedness Levels are set to help assure that firefighting resources are ready to respond to new wildfire incidents. Preparedness Levels are dictated by fuel and weather conditions, fire activity, and resource availability. Preparedness Levels range from 1 to 5; 5 is the highest level. As Preparedness Levels rise to PL 4 and 5, national resources are heavily committed while potential for emerging significant fires is high and expected to remain high in multiple geographic areas (definition courtesy National Interagency Fire Center). 2018 had 88% more days at these two highest levels than the 10-year average for northwest geographic area, and although there were 28 days less than in 2017, 2018 is comparable to the 2015 fire season (43 days at PL 4 and 5). And overall, the average number of days at these higher PL levels have increased over the past 10 years.

2018 was a year of heavy smoke impacts, especially in southwest Oregon. Need just a bit more smoke info here? See Figure 3 Air quality impacts as measured August 3, 2018.
Figure 2. Notable 2018 Fires and Lightning Events

Figure 3. Mass emerging wildfire incidents due to lightning, as mapped August 17, 2018.
Figure 4. Air Quality Impacts as Measured August 3, 2018, also showing fire in southwest Oregon and northern California.
Figure 5. Large fires in 2018 – Snapshot from September 20, 2018.
ODF Incident Management Teams were deployed multiple times this year. After all teams had rotated and deployed again, the Ramsey Canyon fire (8/22, 1,300 acres) near Grants Pass began burning through the crowns of heavy timber and was spotting – igniting new fires from wind-blown embers. By this time in the season, backup and support from our partners from Florida and other states was a welcome relief.

Over Labor Day weekend, the Hugo Road fire started north of Grants Pass, but was held by ODF at 199 acres. At the time the Governor declared a Conflagration for OSFM to engage in structure protection, 173 structures were under level 3 mandatory evacuation orders, 92 structures were on a level 2 evacuation notice, and 270 structures were on a level 1 evacuation notice.

Nationally, and in Oregon and Washington, we were at Preparedness Level 5 (the highest level) for 32 days, 8 days shorter than the 2017 fire season (which was a record season). Meaning, across the nation we experienced significant wildland fire activity that required a major commitment of limited and heavily sought after resources.

Similar to 2017, extensive fire activity on the landscape in 2018 affected multiple ownerships, and firefighting resource draw-downs made 2018 another year of partnerships, with neighbors within the state, region, nation, and international partners being called to duty.

And the partnerships go both ways. Strike teams from the Oregon Department of Forestry (ODF) and Douglas Forest Protective Association (DFPA) supported CalFire at the Camp Fire (11/8, 153,336 acres) in Butte County, California. Reported as the deadliest wildfire in a century, the Camp Fire claimed over 18,000 structures in the town of Paradise, and 86 lives. ODF conducted burning operations assisted recovery efforts in the City of Paradise and surrounding communities. The teams worked alongside Cal Fire and California Office of Emergency Management as well as numerous fellow firefighting agencies.

Due to the extensive destruction caused by Hurricane Michael, the Florida Division of Emergency Management requested additional Incident Management Teams. ODF stepped up to fill this request, working with Oregon’s Office of Emergency Management (OEM), and sending a team to assist with relief and recovery efforts. Their mission was in Bay County in the Florida Panhandle, where they integrated with IMTs from Mississippi and Florida. The unified IMT provided leadership to the county for emergency management response by deploying resources for search and rescue. The team then shifted into recovery mode by helping residents obtain transitional housing and getting kids back into schools.
Despite extreme conditions and a persistent pressure of wildfires spreading from neighboring jurisdictions, ODF protected lands were fiercely guarded. Initial Attack response excelled at 93% of fires caught at 10 acres or less. In 2018, ODF recorded 1,113 total fires and 76,739 protected acres burned. This is an 18% increase in number of fires from the previous 10 year average (947 avg. fires) and a 127% increase in acres burned (33,806 avg. acres). Our new 10 year average has risen with 2018 data to 949 fires and 40,731 acres burned.

894 human caused fires are up 12% from last year, and 28,008 acres burned is 271% above the 10 year average, largely due to several human-caused fires over 100 acres this year, some of which were large project fires such as the South Valley Road Fire (7,759 ODF-protected acres of a total fire acreage of 20,026), the Klamathon fire from California (38,050 total acres, 2,220 ODF-protected acres), and the Ramsey Canyon, Lobster Creek, and Hugo Road fires, all totaling 2,584 protected acres. On average, lightning fires burn more acres than human fires, but this year these human fires also required extended attack due to weather and fuel conditions making for more intense burning.

291 lightning caused fires are actually down 19% from the 10 year average, but still burned 48,731 protected acres, 86% above the 10 year average. Please see Charts in Figures 4 and 5.

The lightning event of 7/15-7/16 ignited 140 fires, 10 of which remained on the landscape until the next lightning event on 8/16-8/20 and a couple of fires burned to the end of the season. The Garner Complex with Taylor Creek fire, the Klondike, Sugarpine, and Miles were all ignited at this first lightning event, and only two of these were ODF-jurisdiction. Acres burned from neighboring jurisdictions impacted ODF’s bottom line this year to nearly double the average, and last year’s acreage. 2,815 lightning strikes were counted on 7/15-7/16 in an area focused on Southwest Oregon. In August, another 2,335 strikes moved over Central and Northeast Oregon.

Overall in Oregon, the Northwest Interagency Coordination Center (NWCC) reported 2,019 fires in all jurisdictions and 897,263 acres burned. At season peak, there were 8,000 firefighting personnel engaged, including 900 Oregon National Guard members, and 5,500 private contractors. From fire activity this year, 7,641 people were evacuated and nearly 8,534 structures were threatened. The valleys and southwest Oregon experienced extensive smoke intrusions from wildfire again this year.
Figure 6. ODF Number of Fires in 2018 and 2009-2018 10-year average.

Figure 7. ODF Protected Acres Burned in 2018 and 2009-2018 10-year average.
LARGE FIRE COSTS AND FEMA FIRE ASSISTANCE

ODF spent significant dollars in 2018 suppressing fires, protecting natural resources, communities and Oregonians. ODF continued promoting an aggressive fire severity control program in 2018 by contracting for additional resources. These resources include one large air tanker, eight medium helicopters, one small helicopter, five single-engine air tankers, two fire detection planes and several ground-based resources. ODF added additional aviation and ground resources during periods of very high fire danger and increased fire activity.

Gross large-fire costs for 2018 are estimated at $101.8M and net large-fire costs are estimated at $41.5M. These costs do not reflect any of the landowner losses incurred in these fires. Landowner losses are roughly estimated to be triple the suppression costs.

Figure 8. Large Fire Costs

![Large Fire Costs Graph]

Six fires in Oregon were eligible for FEMA Fire Management Assistance Grant (FMAG) funding: the Graham, Substation, South Valley Road, Ramsey Canyon, Garner Complex (including the Taylor Creek Fire), and Hugo Road Fires. These fires contributed to Conflagration Act declarations, activating Oregon State Fire Marshal (OSFM) incident management teams and taskforce deployments, with thousands of homes being evacuated. The Taylor Creek fire threatened 3,292 structures and 1,780 residences and required evacuation of 954 people. The Substation fire, in addition to threatening 2,551 homes and structures, also impacted
extensive wheat agriculture landownerships and resulted in the death of a landowner participating in firefighting activities. See Figure 9, Map of 2018 ODF FEMA Fires.

Figure 9. 2018 ODF FEMA Fires
ODF uses an array of firefighting resources. A great example of these resources are the severity aircraft which are available throughout the state to support wildland firefighting. These resources can get into a location before crews even arrive on site. These assets are under contract with ODF to respond when fires reach a critical stage. Last fire season, severity aircraft flew 1832 hours (chart in Figure 11 below adds up to 1422 hours?), which is the most flight hours in Severity Program history. These resources are invaluable in Oregon’s wildland firefighting effort.

The agency utilized aerial resources provided by the Oregon National Guard and the Government of Saskatchewan, Canada to support fire suppression efforts to include:

- **Chinooks (CH-47F)** – Two Type 1 helicopters were on incident for 37 days, flew a total of 137 hours, delivering over 860,000 gallons of water.
- **Lakota (UH-72A)** – Type 3 helicopter was on incident for 11 days flying 21 hours of aerial recon and intelligence gathering missions.
- **2 Convair 580 heavy airtankers and AC-690 air attack platform** were on incident for 38 days, flew a total of 169 hours and delivered 162,256 gallons of retardant.

ODF continued efforts to innovate and integrate new technology into firefighting efforts. The agency utilized several different manned and small Unmanned Aircraft Systems platforms to gain real-time intelligence through onboard infrared sensors during the 2018 fire season.

A Boeing Scan Eagle was utilized on the Garner Complex to survey the fire line at night and to facilitate the creation of current wildfire perimeter maps. The Scan Eagle was
equipped with infrared (IR) sensor and video which were used to gain real-time intelligence on the wildfire. The Scan Eagle flew a total of 35 hours at night on the Garner Complex.

The utilization of the Air Guard’s Distributed Real Time Infrared (DRTI) platform (RC-26) was very successful in 2018. The DRTI was prepositioned in Region 6 by the Northwest Coordination Center for perimeter mapping, distributing real-time situational awareness, and to conduct infrared fire detection.

On August 20th, after a DRTI detection flight in Northeast Oregon (NEO), the Blue Mountain Interagency Center received an email containing the coordinates and high definition infrared imagery of 15 previously unreported fires. At this time much of the northeast portion of the state was experiencing low visibility conditions from smoke, making new fires very difficult to detect. When the DRTI data package was received by the NEO District Forester, he was blown away by the accuracy and detail of the data products. Many of the new fires were burning in very troublesome terrain and if more time had elapsed the probability of stopping them in initial attack was unlikely. The early detection of these fires, coupled with the quick response of initial attack resources likely saved millions in fire suppression costs.

These technologies proved to be very useful for supporting firefighting operations and the agency looks forward to exploring more applications for these systems in future seasons. The technology provided real-time decision support for observing active fire behavior, detecting spot fires, assessing values at risk such as structures, and for monitoring firefighting work in the context of firefighter safety.
CAMERA DETECTION SYSTEM: A CRITICAL WILDFIRE SUPPRESSION TECHNOLOGY

An aggressive initial attack, early in the first burn period, is critical to a successful fire suppression outcome. In order to put out fires quickly and keep them to the smallest possible size, it is necessary to have an effective detection program. The ODF uses a combination of the general public, aerial flights, historical Forest Lookouts and the innovative ForestWatch Smoke Detection System.

The ForestWatch system consists of remote camera sites that transmit images to a control center where an operator can monitor multiple sites. With the first hint of smoke the operator can instantly get a wide range of information, which includes legal location, ownership, road numbers, water sources, etc. The operator can also take control of the camera and zoom in for a closer examination.

During the 2018 fire season, staffing began in early June and continued throughout the end of the fire season. Although the system monitors and records 24 hours a day, the control centers are generally staffed from 7:00am to 9:00pm with staffing levels adjusted for changing risk periods and conditions.

The ForestWatch system had 47 operational camera sites during the 2018 fire season and an additional 11 sites are being developed for the 2019 season. See Figure 15, Detection camera system as of 2018 fire season. These 47 sites are monitored by 6 detection centers and cover approximately 16 million acres of private, County, State, and BLM ownerships throughout 8 ODF districts and multiple agencies.

The Detection Centers were responsible for over 598 smokes detected, which 112 were first reports. An additional 264 smokes reported by the public, were investigated and evaluated with the system. In addition to spotting and locating fires, the system operators monitored areas where the Lightning Tracker System showed down strikes and followed progress on extended attack fires.

This last season saw many improvements to the system including increased capacity to the communication backbone and a continued migration to IP based, High Definition, cameras. EnviroVision Solutions (EVS), the parent company of ForestWatch, also released a new software upgrade and a re-engineered onsite controller.
Like 2017, the 2018 fire season was predicted to be average, but on all accounts it was above average, and memorably historic. For California, the Camp Fire was devastating and a killer. For Oregon, wheat agriculture, timber, and homes in the wildland urban interface were under assault. Lightning, smoke, and multiple simultaneous large fires on neighboring jurisdictions across the landscape threatening ODF-protected lands and multiple ownerships, characterized the 2018 fire season.

Firefighting resource draw-downs made 2018 another year of critical partnerships as well, with neighbors within the state, region, nation, and teams from partner nations being called to duty.

Despite extreme conditions and a persistent pressure of wildfires spreading from neighboring jurisdictions all over the state, ODF protected lands were fiercely guarded. Initial Attack response excelled at 93% of fires caught at 10 acres or less, very near to the 98% stated objective for fire suppression in Oregon. 2018 was an historic fire season in terms of sustained, intensive activity and severe conditions, but the statistics this year are a testament to ODF’s successful prevention messaging, resource allocation, initial and extended attack response.