



PROTECTION FROM FIRE

FIRE SEASON REPORT 2016

Protecting Oregon's forestlands from fire through a complete and coordinated system.

TABLE OF CONTENTS

Contents

Protection Division at a glance _____	3
Fire Season Overview _____	4
Fire Season at a glance _____	5
Wildfire causes and prevention _____	10
Fire Operations _____	13
Equipment Pool _____	17
Smoke Management _____	19
Fire investigation _____	22
Agency Contact Information _____	23

FIRE SEASON 2016 REPORT

MISSION AND STRATEGY

The mission of the Oregon Department of Forestry's Fire Protection Division is to protect more than 16 million acres of private and public forestland in Oregon from wildfire. This is accomplished through a complete and coordinated system that brings together the personnel and other resources of the Oregon Department of Forestry (ODF) with:

- other state agencies
- city fire departments
- rural fire protection districts
- rangeland protection associations
- federal wildfire agencies
- contractors
- forest landowners

As the largest fire department in Oregon, the Division's over-arching goal is to minimize cost and loss through aggressive initial attack, extinguishing as many fires as possible while they are still small. The Division's strategies center on fire prevention, suppression, mitigating wildfire risk and ensuring adequate funding to maintain the ability to fight fires. This approach saves lives and property while protecting the environmental and timber resources of Oregon forests.

STRATEGIC HIGHLIGHT

By bringing to bear air and land fire-fighting resources in Oregon's complete and coordinated system, the agency successfully extinguished 97% of all fires at 10 acres or less. This was just 1% under our target performance measure of 98%. In the past 12 years this performance was exceeded only by 2004, and equaled only in 2006 and 2010.

FINANCIAL HIGHLIGHTS

Base-level protection budgets increased to \$43.8 million in the 2015-17 biennium, up from \$31 million in 2003-05. These base-level budgets support the agency's fire readiness, including personnel, equipment, facilities, fire engines and contract aircraft at the district level. As the budget has risen, so has the cost of fighting wildfires. Major drivers include:

- rising costs for personnel, contractors, equipment use and training
- trends related to climate conditions, such as warmer temperatures and earlier snowmelt
- increasing safety requirements
- shifting federal fire policy
- buildup of fuels on federal lands
- contraction in forest-sector industries that are important partners in fire protection

FIRE SEASON 2016 REPORT

- escaped fires from unprotected and under-protected lands
- a growing percentage of fires occurring in the expanding wildland–urban interface.

The cost of fighting large fires in 2016 was only about half the 10-year average. Although greatly below the severe fire seasons of 2013-15, large-fire costs in 2016 were higher than any of the seven years prior to the three severe years.

The continued erosion of buying power of budgeted dollars relative to the severity of Oregon’s fire seasons and increasing costs of fighting fires threaten public safety, firefighter safety, forest resources and human health.

A major success for the Division was our renewing the unique catastrophic fire insurance policy with Lloyds of London, with coverage for \$25 million of severe fire costs. This was a major accomplishment given that insurers had to pay claims to cover high fire-fighting costs from the extraordinary 2013-15 fire seasons. Confidence in Oregon’s fire prevention and suppression efforts helped us obtain renewed coverage.

LOOKING AHEAD

The winter of 2016-17 ended a long drought in Oregon, bringing above-normal snowpack levels and near record rainfall long into the spring. However, long-term climate projections indicate that the mean annual temperature across most of the western U.S. will increase by 2050, causing loss of moisture from soils and vegetation. Other impacts may include shifts in the range and type of vegetation, more frequent and intense outbreaks of pests and diseases, and a reduction in snowpack duration that will adversely affect summer water supplies.

Especially concerning is that wildfire fuels, particularly on federal lands, have accumulated to uncharacteristically high levels in our state’s dry forest ecosystems. Dense stands of small trees, resulting from past fire exclusion and other land management approaches, are more prone to being killed by insects and disease, which adds to the amount of dry, flammable fuels. This increases fire risk, frequency, intensity, severity and size as well as associated suppression costs.

The combination of fuel buildup, declining forest health, and greater severity and frequency of drought coupled with competition for shared firefighting resources and rising firefighting costs has created fire risk unprecedented in recent history. This is stretching the Department’s capacity to deliver the most-efficient level of initial attack. With budget shortfalls increasingly common at the state level and uncertain federal support, our challenge is to make the most effective use of tools, technology, prevention and partnerships so Oregonians can continue to be protected from uncontrolled wildland fires.

FIRE SEASON 2016 REPORT

Protection Division at a glance



395 FULL TIME EQUIVALENT (FTE)—protection is provided through a complete and coordinated system that incorporates the resources of federal wildfire agencies, other state agencies, city fire departments, rural fire protection districts, rangeland protection associations and forest landowner and operators.



PROTECTS 16.2 MILLION ACRES— Oregon forestland, with an estimated value of more than \$60 billion
BASE BUDGET \$48 MILLION—General Fund (GF) / Private Landowner and Public Lands Assessment
STATEWIDE SEVERITY \$5 MILLION—GF/Oregon Forest Land Protection Fund (OFLPF)



SALEM HEADQUARTERS—State Forester and Division Leadership
3 AREA OFFICES—Northwest Oregon Area, Southern Oregon Area, Eastern Oregon Area
12 DISTRICT OFFICES—Manage the unit offices
32 UNITS—Spread throughout the state for maximum resource protection.
3 ASSOCIATIONS—Coos Forest Protective Association (FPA), Douglas (FPA), Walker Range (FPA)



CATASTROPHIC WILDFIRE INSURANCE POLICY \$25 MILLION
INSURANCE PREMIUM—Funded by GF/ OFLPF
INSURANCE DEDUCTIBLE \$50 MILLION—\$20 million GF/OFLPF + \$30 million State of Oregon



2 STATE OWNED AIRCRAFT— Cessna 414 / Partenavia P-68
16 SEVERITY AIRCRAFT (STATEWIDE EXCLUSIVE USE AIRCRAFT)
14 ASSOCIATION & DISTRICT AIRCRAFT— Base Budget Funded



3 NATIONALLY QUALIFIED INCIDENT MANAGEMENT TEAMS—available for large complex fires
180 CONTRACT CREWS—ODF Protection manages the crew contract (crews are available nationally)
25 INMATE HAND CREWS—provided by Oregon Department of Corrections



250 WILDLAND FIRE ENGINES AND WATER TENDERS
3 MOBILE SUPPORT SYSTEMS—for IMT Deployments (Kitchen/ Showers/ Coms Unit/ IT Unit/ Fire Cache)



22 RANGELAND ASSOCIATIONS—spread across eastern Oregon
800 VOLUNTEER FIREFIGHTERS & 300+ PIECES OF WATER HANDLING FIRE EQUIPMENT
PROTECTS 5.1M ACRES of both private and state-owned rangeland from wildfire

FIRE SEASON 2016 REPORT

Fire Season Overview

The complete and coordinated wildfire protection system – consisting of ODF, landowner partners, agency cooperators and fire-fighting contractors – has been successful under some challenging conditions this year.

The fire season started with the Akawana Fire near Sisters on June 7. This lightning-caused fire spread quickly and threatened structures, with approximately 900 homes under orders to evacuate. After Gov. Kate Brown declared a Conflagration Act for the fire, ODF and the Oregon State Fire Marshal deployed incident management teams.

Conditions moderated in July with some scattered moisture across the state. As fire potential increased in August, our severity program aviation fleet again proved essential to keeping fires small. During the first weekend in August, severity resources, local partners, landowners and contractors engaged in fighting over 40 lightning fires on ODF-protected lands, keeping all but two fires to 10 acres or less. Fire activity peaked in late August west of the Cascades with significant fires including:

- 2500 Road fire (202 protected acres burned)
- Cleveland Ridge fire (520 protected acres burned)
- High Pass 12.5 fire at (191 protected acres burned)

Figure 1 shows ODF significant fire potential at extreme and high levels statewide in mid-August. Throughout the state, all of the fire danger indices for August were above average with abnormal to severe drought covering the entire state.

Challenging fire conditions persisted until October 13 when rains helped close the fire season.

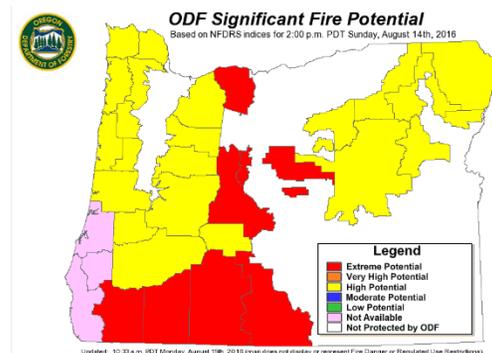


Figure 1. Moderated conditions in July did not last. By mid-August, Significant Fire Potential reached high and extreme for most of ODF Districts and Associations.

FIRE SEASON 2016 REPORT

Fire Season at a glance

FIRE SEASON DATES

The 2016 ODF fire season lasted 135 days. Walker Range Protective Association was the first to declare fire season in effect on June 1. The Oregon Department of Forestry officially ended fire season on Oct. 14 with Central Oregon District being the last to lift restrictions. By comparison, the 2015 fire season also started on June 1 but did not end until October 28 for a 149-day fire season. The 2014 fire season started on May 22 and ended October 23 for a 154-day fire season.

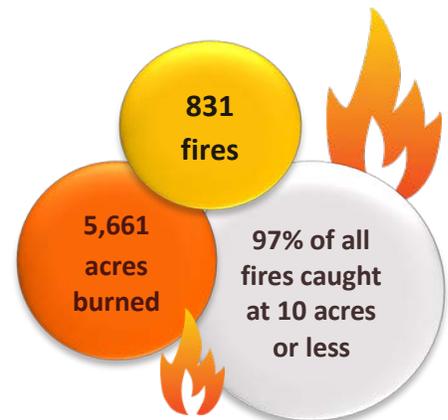


Figure 2. ODF kept 97% of fires to 10 acres or less, only 1% under the target of 98%.

2016 FIRES

ODF recorded 831 fires this year, which burned 5,661 protected acres. Lightning-caused fires were significantly lower than normal. Only 74 fires (9%) were started by lightning. These burned 2,349 acres. Most fires in 2016 – 91% – were human caused. Those 757 fires burned 3,312 acres. ODF responded to an additional 246 fires as mutual aid to partner fire departments or as other incidents where ODF supported federal and other agency partners. ODF personnel also responded to 1,859 potential wildfire and smoke-associated calls this year, a necessary fire-patrol activity contributing to the prevention of wildfires across all of our districts in Oregon.

With the full complement of firefighting resources in Oregon’s complete and coordinated system, the agency successfully extinguished 97% of all fires at 10 acres or less, just 1% under the target performance measure of 98%.

Figure 3 is a statewide map showing fires ODF suppressed during the season as well as large interagency fires where ODF partnered in incident management or closely tracked a fire’s progress. Year-to-date human and lightning fires are shown, and in inset maps, the largest fires with acres burned at date of containment. All of the insets and the primary reference map show land-management designation, illustrating the impacts from large wildfires on multiple private, state and federal lands.

FIRE SEASON 2016 REPORT

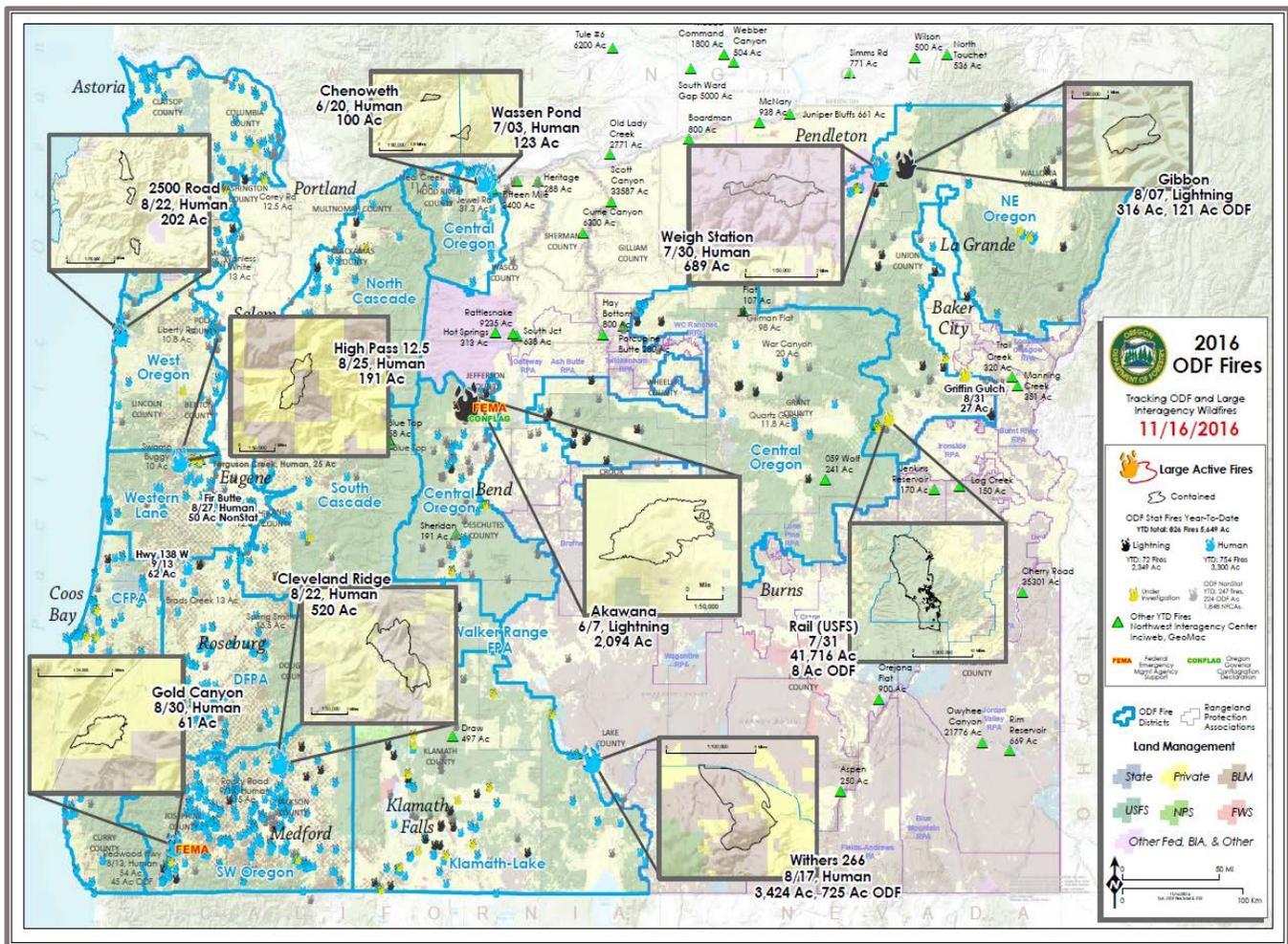


Figure 3. Statewide 2016 fire season reference map with insets of large fires.

FEMA FIRES

There were two fires that qualified for Federal Emergency Management Agency (FEMA) support in 2016 – the Akawana Fire and the Gold Canyon Fire. A request for FEMA support in the form of a fire management assistance grant can be made while a fire is burning uncontrolled and threatening destruction with a potential to become a major disaster.

Akawana Fire

Akawana Fire northeast of Redmond was ignited by lightning on June 7 when significant fire potential conditions in the Sisters sub-unit of ODF’s Central Oregon District were moderate, but abnormally dry conditions prevailed. Local fire danger indicators such as Energy Release Component (ERC), which gauges the potential for severe fire activity, were climbing back up from an earlier escalation at the end of May (Figure 4).

FIRE SEASON 2016 REPORT

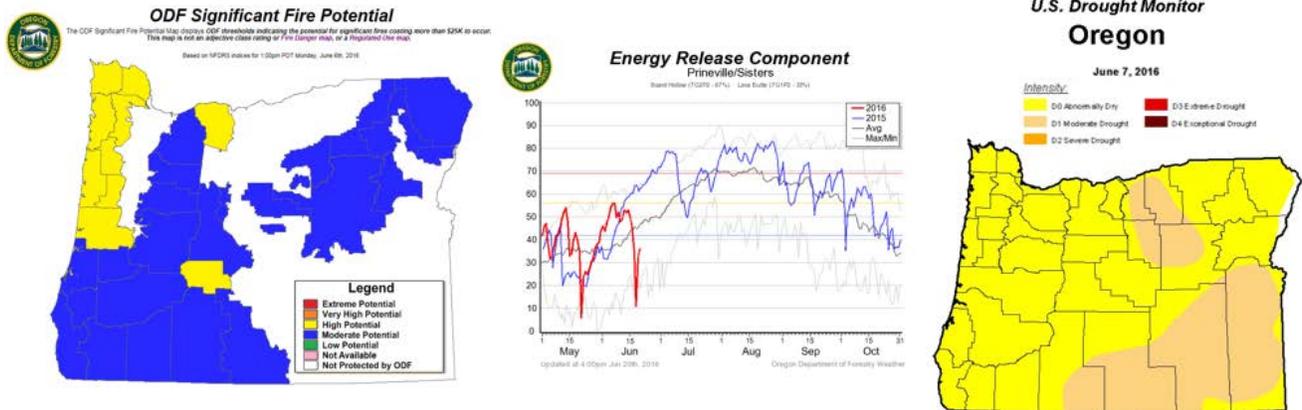


Figure 4. Most of Oregon showed moderate potential for significant fire (in blue) in early June, but the U.S. Drought Monitor indicated abnormally dry conditions throughout much of the state. In the Sisters area, the Energy Release Component (ERC) was quickly climbing back up from a sharp drop in late May.

Oregon Department of Forestry’s Type 1 Incident Management Team led by Incident Commander Link Smith, took command of the fire on June 9, and made quick progress towards controlling the fire. The hard work of ground crews, support from aviation resources and more favorable weather conditions starting on June 11th led to the incident being turned over to a type 3 organization on Jun 14th.

The fire was declared contained on June 20 with 2,094 acres of private land burned. In all, about 400 firefighters and support staff worked on the fire along with air support by helicopters and retardant-dropping air tankers.

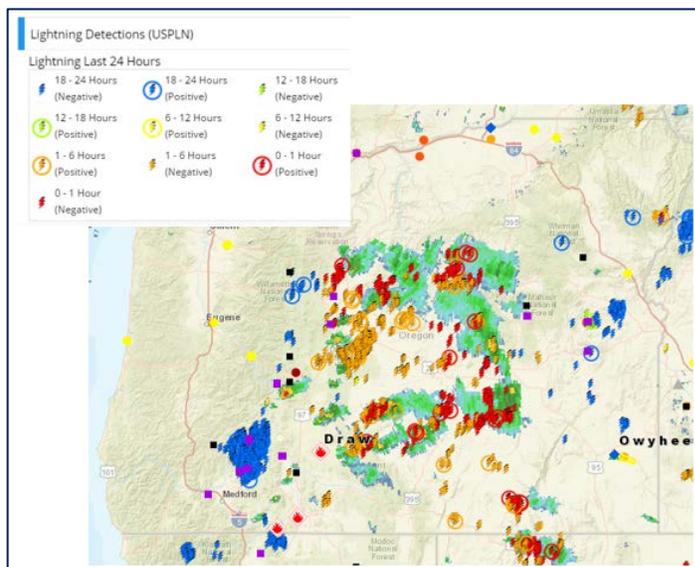


Figure 5 at left. Extensive lightning activity was recorded from a thunderstorm in central Oregon on June 7, igniting the Akawana Fire

FIRE SEASON 2016 REPORT

Gold Canyon Fire

On August 30, the Gold Canyon Fire was reported south of Selma in southwest Oregon. It eventually burned 62 protected acres, threatening infrastructure and homes.

A structural protection strike team was activated to protect homes and other structures from the approaching wildfire. The team was assembled from engines and personnel from fire districts in Jackson and Josephine counties consisting of units from:

- Jackson County Fire District #5 IAFF Local 2596
- Jackson County Fire District 3
- Medford Fire-Rescue
- Jacksonville Fire
- Ashland Fire-Rescue
- Applegate Valley Fire
- City of Grants Pass Fire
- Illinois Valley Fire District
- Rural Metro Fire
- Josephine County
- Rogue River Fire

During August, the potential for significant wildfire for Josephine County in southern Oregon was rated as normal, but it was also abnormally dry. Excessive heat and red-flag warnings were recorded throughout the month.

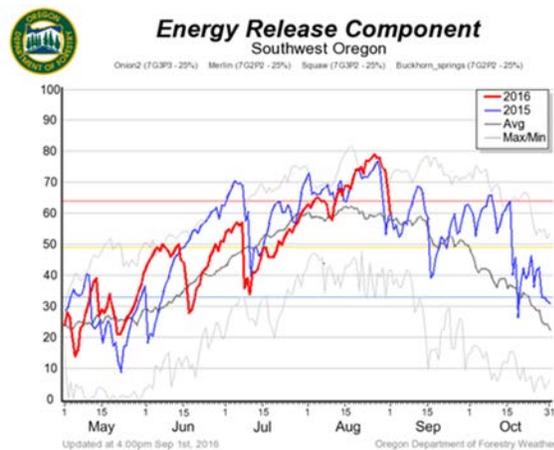


Figure 6. ERC values were already rising toward a peak when the Gold Canyon Fire began.

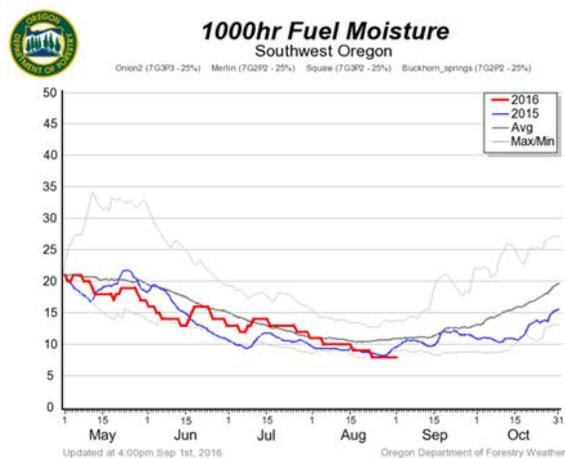


Figure 7. Fuel moistures fell below the 10-year minimum for the area when the Gold Canyon fire started.

FIRE SEASON 2016 REPORT



**Gold Canyon Fire - Medford Crew 319
from ODF's Southwest Oregon District**

Since mid-July, the 1,000-hour fuel moistures were steadily declining, approaching a 10-year minimum. Relative humidities in mid-August fell as low as 10%, with local Energy Release Component (ERC) values nearing a peak. Before the end of August, ERC values had surpassed the 10-year maximum (Figure 6).

Temperatures in mid-August at Medford rose to 109 degrees Fahrenheit, 20 degrees above the historical average for the area. Temperatures remained in the 90s through the end of August. Making matters worse, by mid-August, the Southwest Oregon District had already surpassed by 18 the 10-year average for the number of human-caused fires.

FIRE SEASON 2016 REPORT

Wildfire causes and prevention

Humans caused 91% of all fires in 2016. Although there were slightly fewer human-caused fires than the year before, the number was 11% above the 10-year average of 682 human-caused fires.

There were significantly fewer fires caused by lightning in 2016. Lightning caused just 74 fires on ODF-protected land in 2016 compared to 279 fires the year before. This resulted in a 97% reduction in the number of protected acres burned, from 69,625 acres to just 2,349.

Figure 8 below shows the number of fires and acres burned on ODF-protected lands for the years 2007-2016.

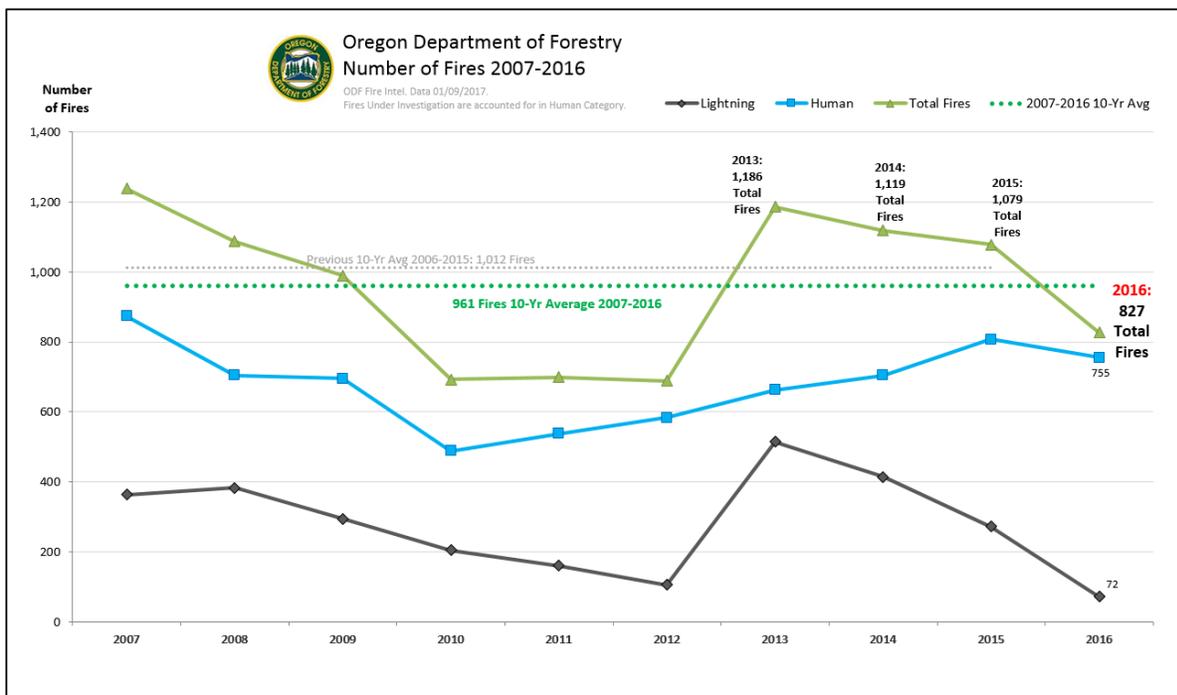


Figure 8. Number of fires over the last 10 years. There were substantially fewer lightning fires in 2016, but nearly the same number of human-caused ones.

FIRE SEASON 2016 REPORT

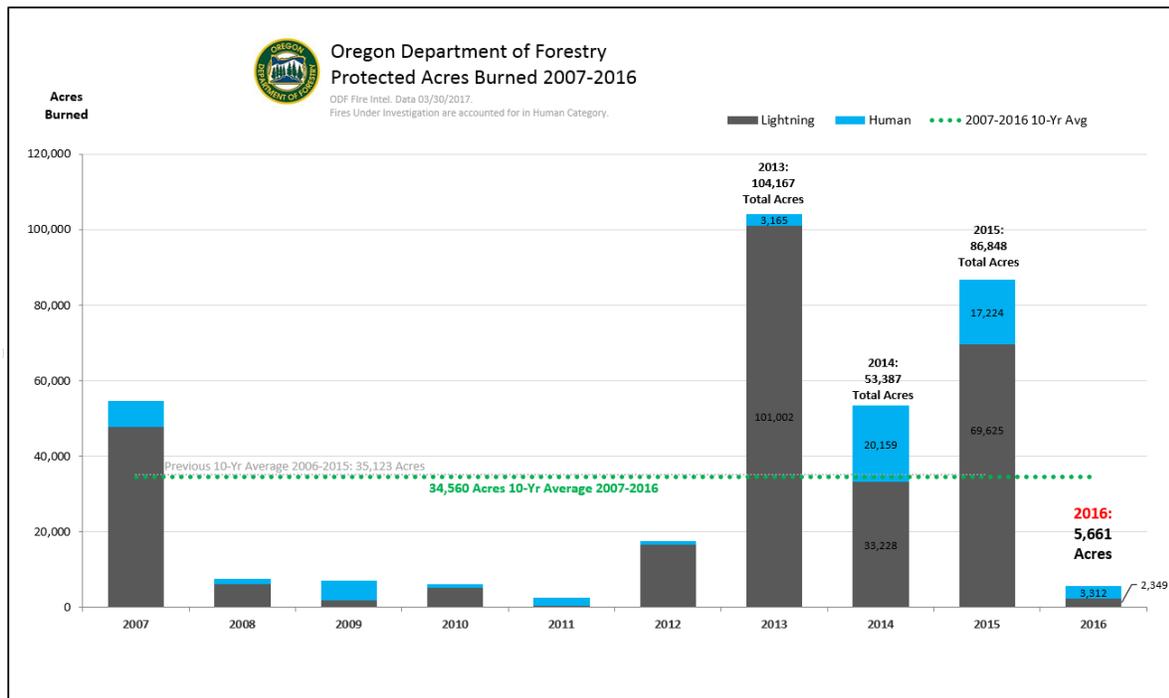


Figure 9. Protected acres burned for 2007 through 2016. While only 9% of fires were started by lightning, those fires burned about 42% of the acres damaged.

People caused 91% of fires on ODF-protected lands in 2016, as can be seen in Figures 10, 11, and 12. Members of the general public, such as campers, fishers, hunters, transients and motorists, caused 47% of the fires and 44% of the acres burned. Some 45% of fires in 2016 were started by public utilities, loggers and other forest workers, ranchers, farmers and other rural property owners. However, the fires they caused represent only 14% of the total acres burned. Of all human-caused fires, equipment use and debris burning started over half. Only 9% of fires in 2016 were caused by lightning. Because of their remote locations, lightning fires burned a substantial portion of the total acres damaged by fire (about 42%).

FIRE SEASON 2016 REPORT

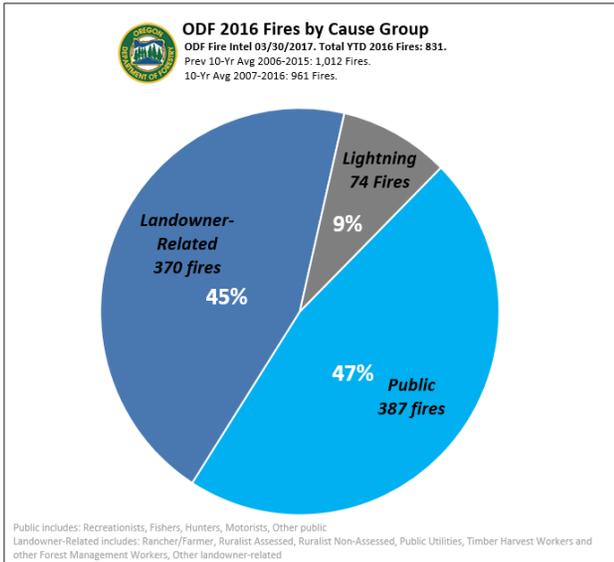


Figure 10. Number of fires by cause.

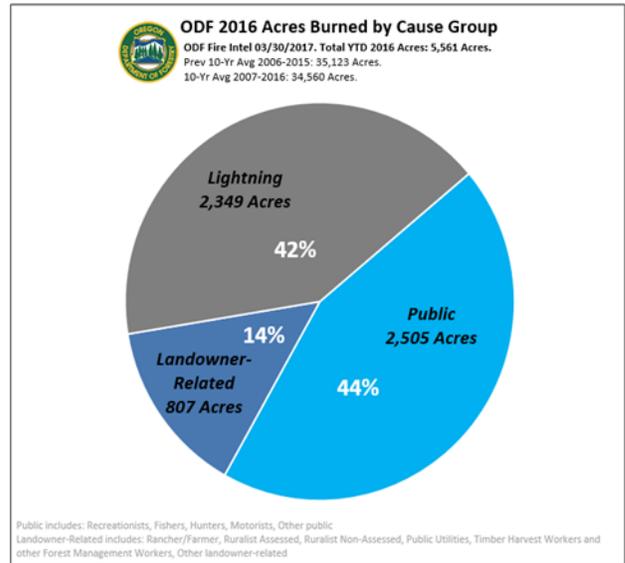


Figure 11. Protected acres burned by cause.

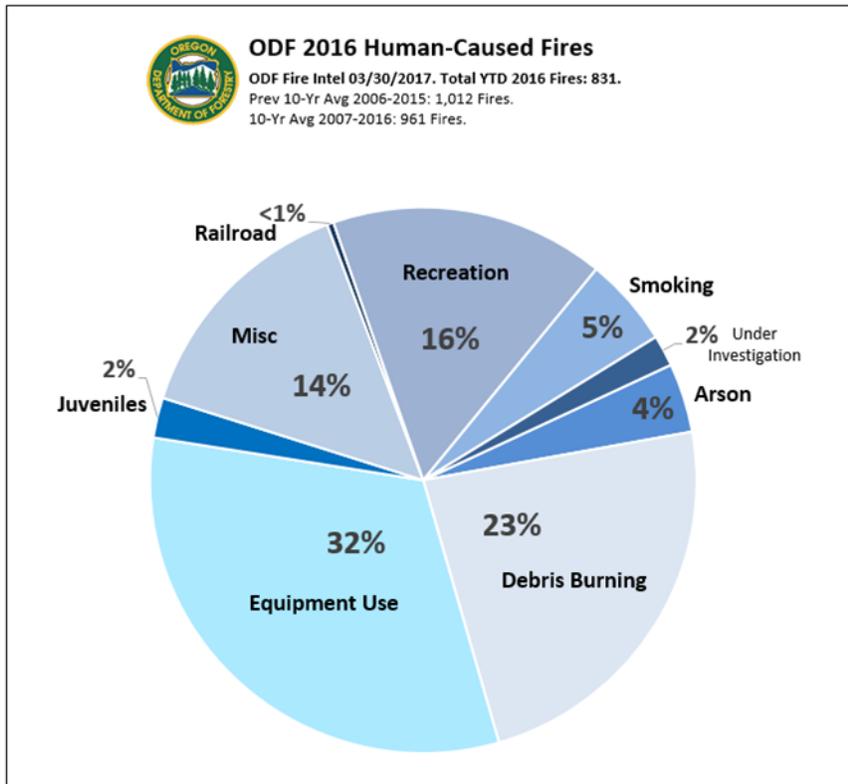


Figure 12. Number of fires by cause.

Top Priority: Fire Prevention

"Fire prevention remains our top priority. Human-caused fires, especially debris burning and illegal, abandoned campfires continue to raise concern. We are constantly looking for new ways to raise awareness to reduce these unnecessary and careless fires."

– Ron Graham, Deputy Chief, ODF Fire Protection

FIRE SEASON 2016 REPORT

Fire Operations

Fire Operations focuses primarily on the large fire effort once wildfire complexities increase beyond the capabilities of the local protection district. Through the management of the Aviation Unit, Salem Coordination Center, Fire Cache, and the Protection Training/ROSS Coordinator, Fire Operations supports complex incident management, including deployment of ODF's three incident management teams.

SALEM COORDINATION CENTER

Salem Coordination Center (SCC) provides safe, cost-effective and timely resources to wildland fires and other emergency/all-hazard mitigation activities, both locally and nationally. SCC coordinates the mobilization of available resources to meet anticipated and existing incidents, preparedness, severity and wildland fire needs regardless of location or agency affiliation. SCC cooperates with the Pacific Northwest Coordination Center (NWCC) to accomplish a shared mission through planning, situation monitoring and expediting resource orders between areas, districts and other cooperating fire agencies.

Significant accomplishments for the 2016 fire season are:

- SCC supported three Type 1 ODF incident management team (IMT) deployments to the Akawana and High Pass 12.5 fires, in addition to one IMT deployment to the Party Rock Fire in North Carolina.
- SCC dispatched 94 Type 2 IFCA contract crews, totaling 562 days assigned, throughout the region and nationally this year. From April through November, Oregon Department of Forestry was able to assist multiple states, including California, Colorado, Idaho, Georgia, Kentucky, Montana, New Mexico, Nevada, North Carolina, South Carolina, Tennessee, Utah, Virginia, Washington and Wyoming.
- The Aviation Desk in SCC tracked and coordinated the use of 16 aircraft prepositioned across the state under exclusive-use agreements with private contractors.
- In addition to dispatch responsibilities, SCC also supported the division by submitting the daily fire statistics report in FAMWEB, conducting weather quality control (weekends), and Senate Bill 360 certification.
- During 2016, SCC assisted in coordinating the deployment of 72 ODF Overhead personnel to assist with firefighting activities in multiple states, including Georgia, Kentucky, Minnesota, North Carolina and Tennessee.

FIRE SEASON 2016 REPORT

Support received:

- Inmates from 10 Oregon Department of Corrections (DOC) institutions logged 439 crew days with 102 fire dispatches around the state. Unified by the Oregon Department of Forestry's mission to put out fires at the smallest size possible, the inmate firefighters worked side-by-side with agency and contract firefighters.
- ODF's severity program received assistance from five helicopter managers from Alaska and Minnesota for a total of 109 days deployed.

Fire Cache

Fire Cache provides statewide logistical support to ODF incident management teams, fire protection districts, and other state and federal agencies. Their efforts are focused on wildland fire suppression and other (all-risk) emergency operations. Fire Cache provides trained personnel, equipment and supplies to any location in Oregon and to cooperating states. Fire Cache has pre-loaded supply vans, large mobile kitchens, shower and washing facilities, and trailers for communications, information technology trailers, GIS and field administration units.

TRAINING

The State Fire Assistance (SFA) Classroom Training Fund was used to support 64 students taking 22 courses, including topics such as:

- Fire Program/databases: E-Isuite
- Command and General Staff: S420
- Leadership: L-280, L-380, L-381, and L-481 Advanced Leadership for Command and General staff
- Aviation: S-470 – Air Operations Branch Director
- Safety: S-404 – Safety Officer, SOFR – Line Safety Officer, SAI – Serious Accident Investigator
- Dispatch: D-310
- Fire weather/Behavior: S-390, S-491, S-590, NPFMT – RX Modeling Techniques, and RX310-Intro to Fire Effects
- Logistics: S-357
- Operations: S-430 – Operations Section Chief and S-339 Division Group Supervisor
- Planning: S-248 – Status/Check in Recorder
- Training: M-410 –Facilitative Instructor and S-445 – Incident Training Specialist

Two of the courses were out-of-state to support critical needs position training (Advanced Fire Behavior Interpretation in Tuscon, Arizona and Serious Accident Investigator training in Denver).

FIRE SEASON 2016 REPORT

Classroom SFA also sponsored the following:

- Cadre and IT support for E-Isuite courses to cover statewide training needs
- Line Safety Officer for critical needs positions
- Time Unit training at the Willamette Valley Fire School

The training program itself provided for:

- Basic Ross training in Salem for the Northwest Oregon Area duty officers/dispatch staff.
- Basic Task Book process/procedure training in Salem
- Two sessions of the RT-130 Fireline Safety Refresher for Salem staff
- I-300/I-400
- Facilitation of nominations for Redmond and out-of-state fire training.
- Completed 29 individual qualifying police and fire eligibility review forms and approx. 100 P&F checks in IQS that did not meet eligibility requirements.
- Produced a 2016 revision of the 2015 ODF Protection Training and Certification manual.
- Produced the 2016 incident qualification cards and master record data entry review for Salem staff.

The Protection training coordinator participated in:

- PNWCG – Training Committee (Region 6 Training officers – Policy)
- Initial Attack Training Committee
- The ODF Driver Training workgroup
- ODF IMT Protection Conference Planning Committee (Development and delivery of a four-day conference)
- The ODF Protection Training Committee
- Northwest Interagency Training Zone Committee (Training schedule coordination in the Northwest Oregon Area)
- DPSST Fire Policy Committee (Representing the wildland fire agencies in formulating structural fire service training and certification policy)
- Facilitation of E-Isuite courses.
- Pre-season Module 2-5 meeting with Area Executive Support and SCC
- Western State Incident Qualification System (IQS) representative (represented the State of Oregon IQS users on monthly conference calls)

FIRE SEASON 2016 REPORT

AVIATION UNIT

The Aviation Unit, located at ODF headquarters in Salem, is staffed by three full-time employees; the state aviation manager, chief pilot, and state aviation coordinator. The aviation coordinator position was developed and filled in 2016 to support the growing administrative needs of the program to include procurement, policy, training and reporting. The coordinator position is currently limited duration and funded through the 2017 fire season.

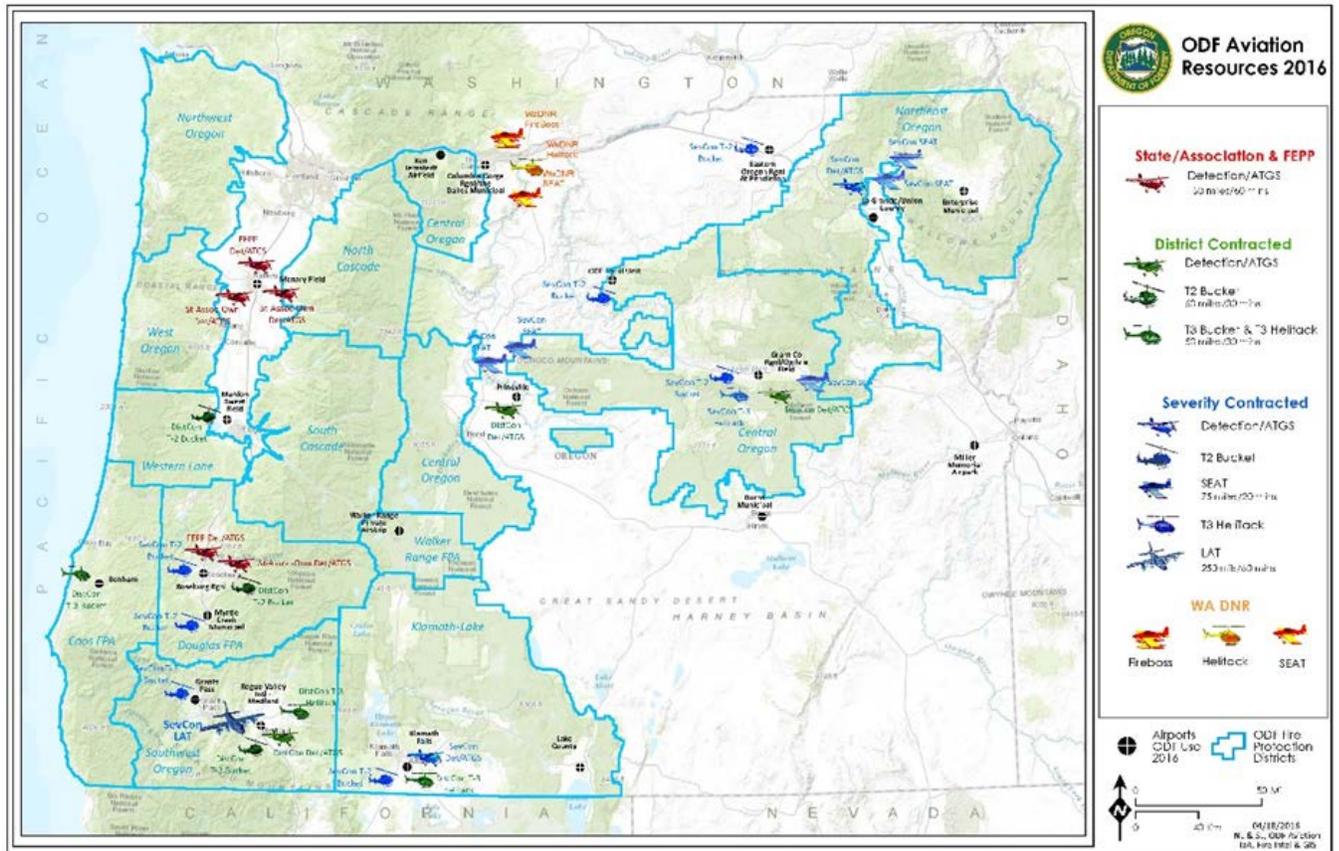


Figure 13. Statewide 2016 fire season reference map with insets of large fires.

Severity aircraft statistics

Severity aircraft had a total of 865 flight hours, with 47% on ODF fires and 53% in support of other agencies. Sharing aircraft with other agencies helps keep fires from spreading to adjacent landowners under ODF and Association protection. ODF and Association single-engine airtanker bases pumped and delivered over 100,000 gallons of fire suppressant gel (FireIce) to incidents in Oregon and Washington. More detailed statistics can be found in the Annual Aviation Report.

FIRE SEASON 2016 REPORT

Equipment Pool

FIRE FIGHTER PROPERTY (FFP) AND FEDERAL EXCESS PERSONAL PROPERTY (FEPP) PROGRAMS

Oregon Department of Forestry, working in partnership with the U.S. Forest Service (USFS), administers two useful programs to obtain fire-fighting equipment for Oregon communities. ODF units and districts, rural fire entities, rangeland associations and fire-protection organizations throughout the state benefit from these two programs that help them obtain equipment at little to no cost.



Above: Equipment acquired through the FFP Program.

Federal Excess Personal Property, FEPP, allows ODF to acquire excess federal equipment, including excess USFS wildland fire engines and equipment. These are on loan from the federal government for the life of the equipment and allocated statewide by ODF where the need exists.

Fire Fighter Property, FFP, allows ODF to acquire excess Department of Defense (DOD) equipment that is distributed, modified and put in service by ODF units and districts, rural fire entities, rangeland associations and fire-protection organizations throughout the state.

In the last 18 months, Fiscal 2016 and beginning of Fiscal 2017, ODF has acquired and allocated over \$9 million dollars of useful equipment statewide. The DOD equipment has been modified into fire and rescue equipment protecting communities statewide.

This equipment includes heavy bulldozers, truck tractors, structural and wildland fire engines, water tenders, Humvees, rescue equipment, water craft and even aircraft; all to help the fire organizations fulfill their mission protecting Oregon communities and natural resources.

Rangeland associations have been allocated 64 trucks, trailers, dozers, tenders, etc. during this period alone, in addition to 49 radios that communicate with State and federal agencies. Rangelands have been allocated over 300 pieces of rolling stock into their inventories over the last several years.

Rural fire departments and associations have been allocated 49 trucks during this same 18-month period, Type 4 & 6 wildland engines, dozers, trailers, truck tractors that have been modified into 3,000 gallon 6 X 6 tenders, generators for earthquake preparedness, structural fire engines, rescue vehicles, ambulances and large-volume pumps.

FIRE SEASON 2016 REPORT

ODF units and districts have also benefitted from the programs. Since June 2015 these units and districts have been allocated 23 units, Type 4 and Type 6 wildland fire engines, truck tractors they modified to become water tenders, as well as pumps, trailers and generators.



Above: Equipment acquired through the FEPP Program.

A total of over 140 pieces of heavy equipment and 49 radios have been allocated. The only acquisition cost to these fire-fighting entities is the actual cost of transportation and administration. A tribute to the **cooperation between federal, State and local** wildfire mutual aid agreements and partnerships.

For additional information contact Mike McKeen, ODF Federal Property Coordinator at 503-945-9425.

Smoke Management

ODF METEOROLOGY AND FUELS

Daily weather analysis and development of western, northeast, and south-central Oregon forecasts and burning instructions have been and will always be one of the primary programs of the Smoke Management section. Currently the section is responsible for quality control of data from 20 agency-owned fire weather stations. The department provides products and maintenance for the National Fire Danger Rating System which fire managers across the state depend on to make informed decisions regarding fire preparedness and staffing levels.

Another key duty is research and product improvement via case studies, climatology forecasts, forecast modeling programming and maintenance, forecast verification, smoke-intrusion reports and complaint investigation.

Committee and cadre support are also provided to agencies such as the Drought Council, National Wildfire Coordinating Group Smoke Committee, and annual Environmental Protection Agency regional smoke management meetings. Support for the Pacific Northwest Training Center in Redmond, Oregon, is given by providing instructors to the RX-410 (Smoke Management Techniques) course and RT-300 (Prescribed Fire Burn Boss Refreshers).

With the addition of the new smoke management field coordinator; the Smoke Management and newly reinstated *"Fuels"* section is also providing increased assistance to districts and landowners with compliance of the Smoke Audit Program. The section is helping to maintain records, perform independent fuels inventories, and looking for ways to improve the program. Department staff are excited to develop relationships and foster support for the Smoke Management Program via ongoing site visits. Smoke Management can now provide a stronger communication channel for feedback between the field and the Salem office, while looking for opportunities to standardize processes that will improve communication efficiency. The capability to assess the need for training internally and externally on fuel-loading calculations, smoke emissions, and regulations has substantially grown this year. The increased capacity in personnel can now provide specialized training to field and Oregon communities by educating the public on the benefits of prescribed burning and smoke management. The new field coordinator is also able to help keep forecasters abreast of fuel conditions and their impacts to smoke.

Smoke Management employees

Nick Yonker,
Meteorology and
Fuels Manager

Pete Parsons,
Meteorologist

Gary Votaw,
Meteorologist

Tom Jenkins,
Meteorologist

Christina
Clemons, Smoke
Management
Field Coordinator

FIRE SEASON 2016 REPORT

Smoke Management 2016 highlights include a successful burn audit campaign with 33 audits exceeding the initial goal. Out of the 2,868 units burned, 11 smoke intrusions were investigated for a 0.38% burn/intrusion ratio. Smoke Management is happy to see that emission reduction techniques, such as pile burning vs. broadcast/underburning, is almost double in amount of units. Not only did forecasters provide services for prescribed fire, but also delivered forecast advisories for 2016's abnormally snowy winter and hazardous conditions.

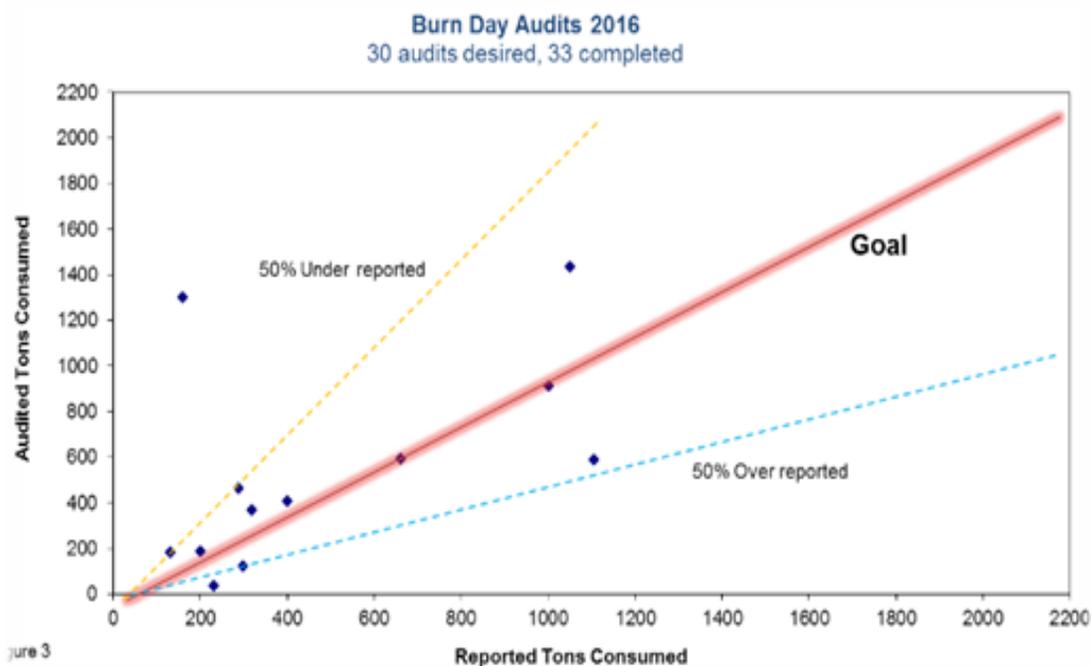


Figure 14. Graph of statewide burn audits in 2016.

BUILDING THE TEAM

ODF Smoke Management has been providing critical and timely smoke forecasts for over 40 years. The program started with a simple “check in with the weather guys,” who in turn gave verbal recommendations to prescribed fire managers in the 1970s. Today, Federal Clean Air Act and Oregon Regional Haze regulations have made smoke impacts a highly visible and controversial component for prescribed fire. With national focus on forest restoration, prescribed fire is on the rise, increasing Smoke Management workload exponentially. ODF's proactive philosophy quickly responded by filling a temporarily vacant meteorologist position and adding a new permanent Smoke Management Field Coordinator (SMFC) to the ranks to keep pace with forecasting.

FIRE SEASON 2016 REPORT

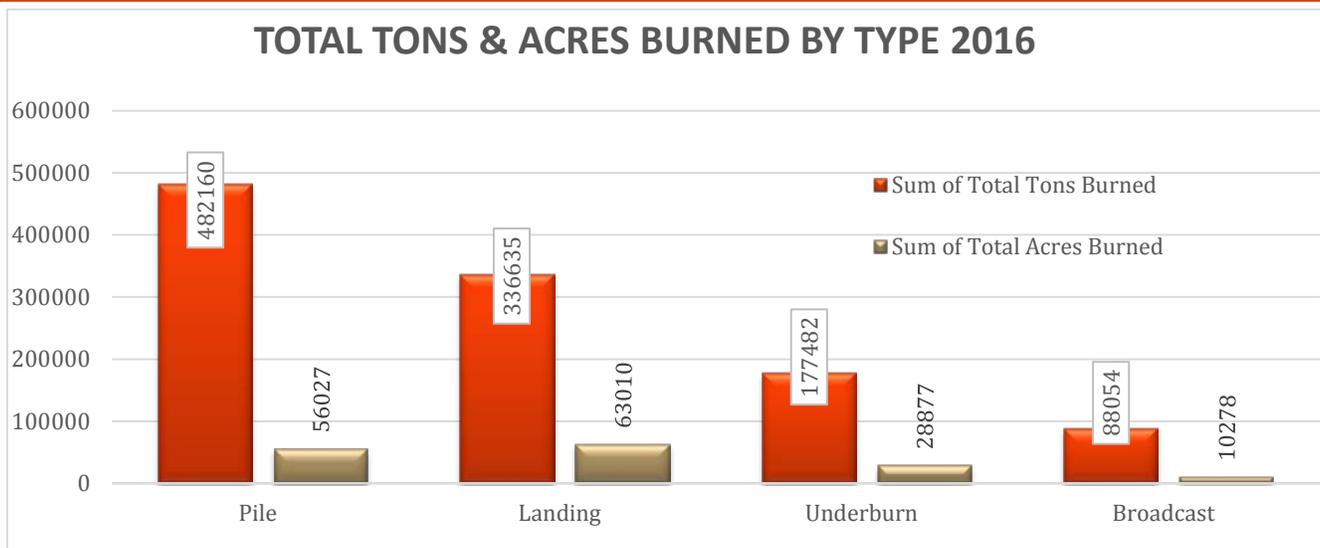


Figure 15. Prescribed fire tons and acres burned by type in 2016.

COMPLETED PROJECTS 2016

Polyethylene (PE) The final report of this study is done. According to scientists and researchers from the University of Dayton Research Institute, U.S. Environmental Protection Agency, Office of Research and Development, National Risk Management Research Laboratory, and ODF, findings have indicated:

1. Dry biomass piles burned with higher combustion efficiency than wet piles.
2. Piles that had been covered with polyethylene had lower emissions than wet piles.
3. Burning the polyethylene cover on piles had no distinctive effect on emissions.

Smoke Database System (SDS) The new data system completed its test pilot in October, field training in December, and launched in January 2017. The cleaner, simplified look has had positive reviews. Already in the works is version 2.0 with bug fixes.

ONGOING PROJECTS 2017

Ongoing Projects 2017 include the development of a “Simple Fuel Loading Calculator.” Smoke has been working with researchers and scientists from the University of Washington and the U.S. Forest Service to best solve this need. A contract request for a weather vendor is in place and is projected to be awarded in 2017.

Analysis and updates to the Smoke Management Plan are under review this year. The major issue is the future of Oregon’s prescribed burn policy. A 20-person committee representing forest landowners and human health advocates has been formed by Oregon Department of Environmental Quality and ODF. The committee is meeting over the summer of 2017 to formulate recommendations for the Smoke Management Advisory Committee.

FIRE SEASON 2016 REPORT

Fire investigation

ODF staff cooperate in investigating fires in state forests and other protected lands. Fire investigation is completed by appropriately trained ODF district employees. The Division works to recover fire suppression costs whenever a responsible party is willful, malicious or negligent in the fire origin or, if reasonable effort is required, fails to make every reasonable effort to control and extinguish a fire.

A key finding in 2016 was that one fire in 25 (4%) was found to be caused by arson, a crime.

Recovering suppression costs from responsible parties helps reduce the burden on the state's General Fund and on forest landowners who pay assessments for fire protection from ODF.



ODF staff cooperate in investigating fires on state forests and other protected lands.

Agency Contact Information



Oregon Department of Forestry

2600 State Street, Salem Oregon, 97310

Tel 503-945-7446

Fax 503-945-7454

<http://www.oregon.gov/odf>