



2017 Wildfire Report

Protecting Oregonians and Oregon forests from wildfire through a complete and coordinated system.

2017 WILDFIRE REPORT

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FIRE 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/Private Landowner and Public Lands Assessment
STATEWIDE SEVERITY \$5 MILLION — General Fund/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 protection of resources
3 ASSOCIATIONS — Coos Forest Protective Association (FPA), Douglas (FPA), Walker Range (FPA)



CATASTROPHIC WILDFIRE INSURANCE POLICY — \$25 million coverage through Lloyd's of London
INSURANCE PREMIUM — funded by General Fund/ OFLPF
INSURANCE DEDUCTIBLE \$50 MILLION —\$20 million General Fund/OFLPF + \$30 million State of Oregon



2 STATE-OWNED AIRCRAFT — Partenavia P-68/ Cessna 414 (sold in 2018)
16 SEVERITY AIRCRAFT — helicopters, airtankers and other aircraft under statewide exclusive-use contracts
10 ASSOCIATION & DISTRICT AIRCRAFT — funded through the agency's base budget



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
1,028 VOLUNTEER FIREFIGHTERS — they fought 146 rangeland fires, assisting other jurisdictions on 35 additional fires. The 17 largest fires (all over 500 acres) were all caught within 24 hours.
400+ PIECES OF WATER-HANDLING FIRE EQUIPMENT — many obtained from federal surplus programs via ODF
PROTECT 5.1 MILLION ACRES — both private and state-owned rangeland

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MISSION AND STRATEGY

The mission of the Oregon Department of Forestry's Fire Protection Division is to protect from wildfire the people, property and natural resources on more than 16 million acres of private and public forestland in Oregon. 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.



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OVERVIEW OF FIRE CONDITIONS

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

Many people hoped the heavy winter snowfall and wet spring across much of Oregon would mean a mild wildfire season in 2017. All that moisture somewhat delayed the start of fire season, which began June 1 in the Walker Range Forest Protective Association and as late as July 10 in northwest Oregon with the Astoria District. However, once the rain stopped it did not resume until the last half of September. The first fires over 10 acres broke out even before fire season had officially begun. A pair of fires in logging slash were reported at the start of the Memorial Day weekend, one in Douglas County and one in Lane County.

Across the state, conditions quickly dried out, leaving fuels ready to burn later in the summer when temperatures rose, in places to triple-digit record highs. August 2017 was the hottest ever recorded in Oregon. July and August saw vegetation in many areas near or at record levels of dryness. Throughout the state, all the indicators of fire danger for August were above average. Challenging fire conditions persisted until rains fell in the second half of September. Soaking fall rains helped close the fire season, with the Southwest Oregon district lifting fire restrictions on Oct. 20.

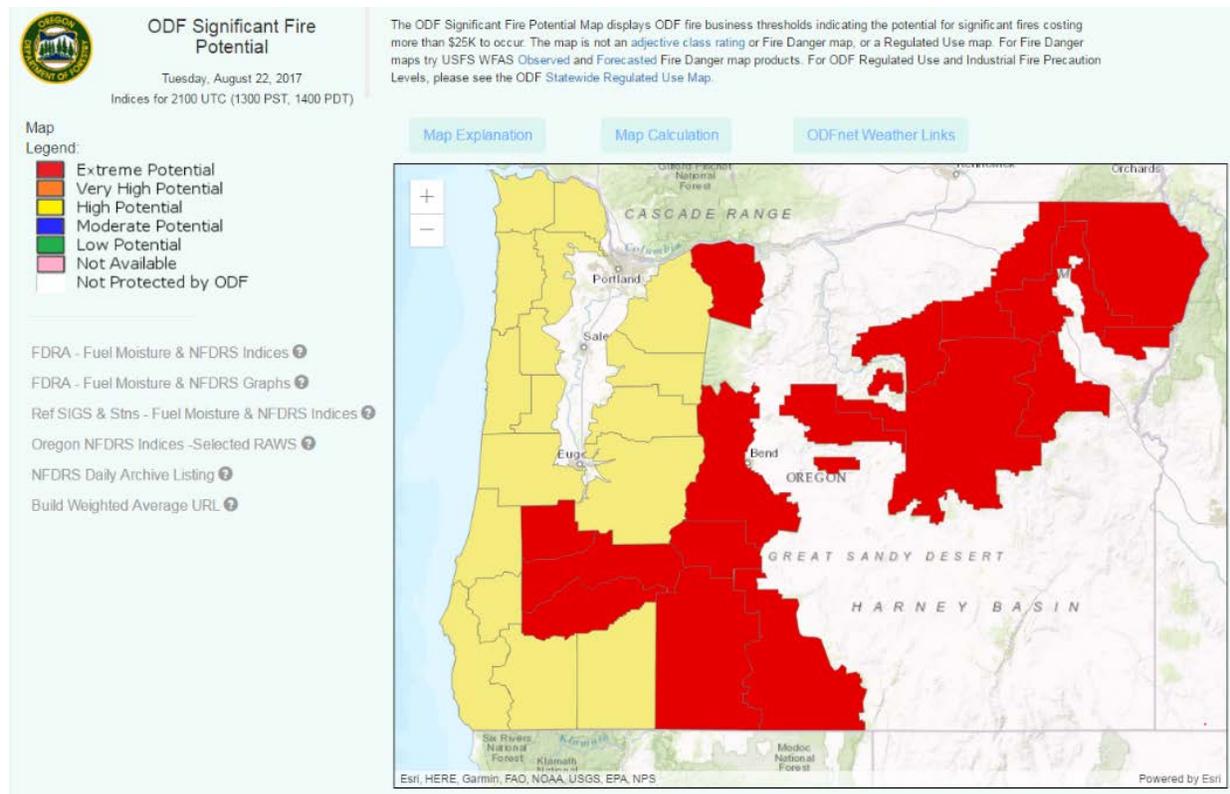


Figure 1. Map showing much of Oregon in extreme and high fire potential the day after the solar eclipse.

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THE FIRE SEASON IN REVIEW

There were 2,058 wildfires statewide over the season, 342 fewer than the 10-year average. Just over half the wildfires in Oregon – 1,090 – were on ODF-protected lands. This is 143 wildfires more than the 10-year average, about 15% higher.

Wildfires also scorched substantially more acres than average in 2017. Across all jurisdictions in Oregon, 717,212 acres burned. That’s about 247,000 acres above the 10-year average for the state or 52%.

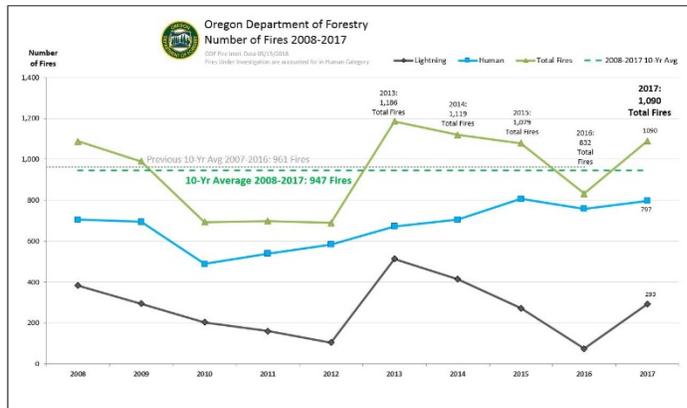


Figure 2. ODF experienced an above-average number of wildfires in 2017 even though the statewide total was below average.

On land protected by ODF, the area burned this year was 47,165 acres. That is 13,359 acres more than the 10-year average, or 40%. Just under half of those acres - some 23,000 – were burned by fires that started on other jurisdictions and spread onto lands protected by ODF.

Looking only at fires that started on ODF-protected lands, the 2017 fire season saw about 24,000 acres burn. More than two-

thirds of this was due to just one fire – the 16,436-acre Horse Prairie Fire in Douglas County. The more than 1,000 other fires that started on land protected by ODF burned a combined total of fewer than 5,266 acres – less than 5 acres each. That’s attributable to aggressive initial attack. Overall, the agency kept 94% of all wildfires to 10 acres or less. This was 4% under our target performance measure of 98%.

The overall fire picture masks some real successes. Again this year no ODF firefighter lives were lost. A number of district’s also kept the number of acres burned to below average levels (see pages 10-11).

The 2017 ODF fire season lasted 142 days from June 1 to Oct. 20. This was longer by a week than the 2016 fire season but shorter than 2015’s 149-days fire season in 2015 and the 154-day fire season in 2014.

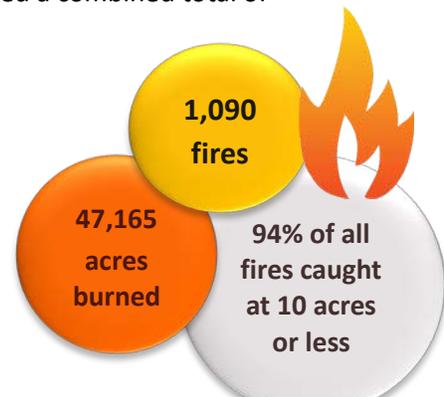
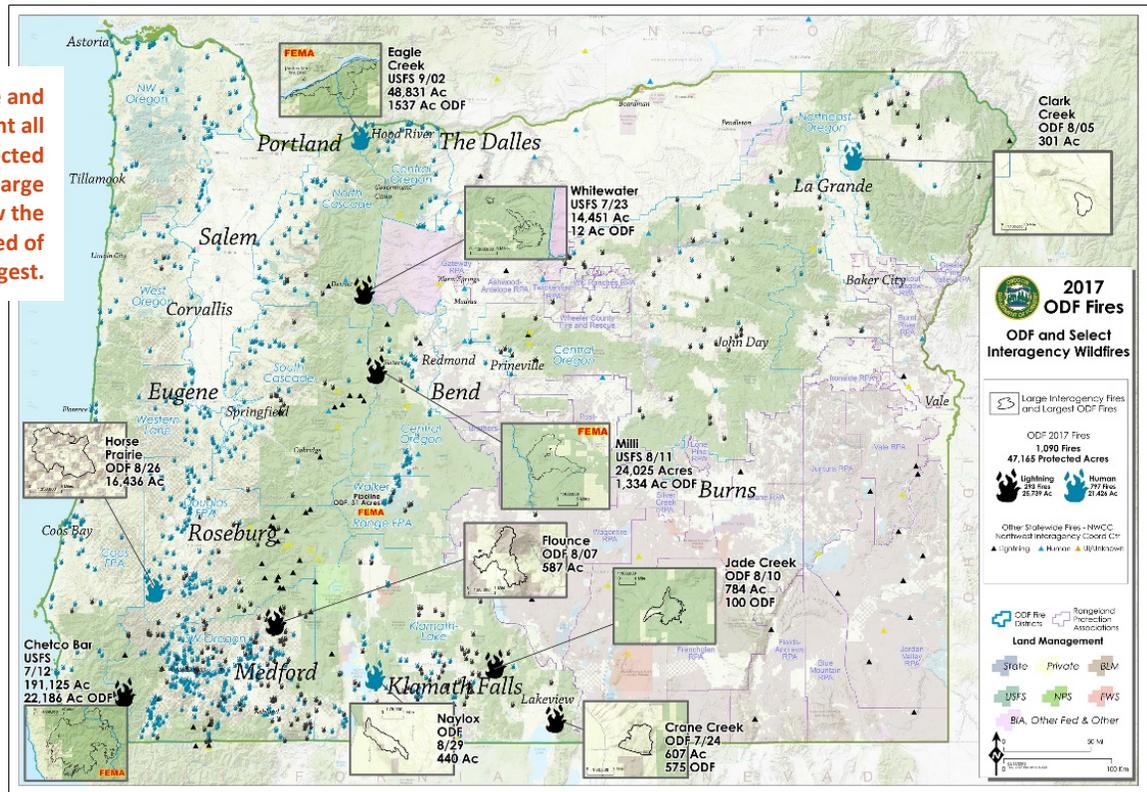


Figure 3. ODF kept 94% of fires to 10 acres or less, 4% under the target of 98%.

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Right: The small blue and black icons represent all wildfires on ODF protected land in 2017. The large flame icons show the names and acres burned of the 10 largest.



LIGHTNING RETURNS

One factor making it harder for our crews to put out all wildfires at initial attack was the sheer number erupting at the same time from lightning. Over four days in late July, Oregon was pummeled by 6,102 lightning strikes – a hitting on July 26.



At least eight significant lightning fires started in July, including Whitewater, Blanket Creek and Chetco Bar. The latter fire became the largest of 2017 and one of the biggest in Oregon’s recorded history.

From Aug. 7 to 12 a second round of storms brought 4,228 lightning strikes. These produced a flurry of persistent fires, many on federal lands. Many lightning-sparked fires burned well into September.

Left: Oregon’s largest wildfire of 2017 was started by lightning. The Chetco Bar Fire in southwest Oregon burned 191,125 acres before it was stopped.

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IMPACTS ON OREGONIANS

Although there were no civilian fatalities, almost 20,000 structures statewide were threatened. Ten homes and 20 other structures were destroyed. Over 7,600 people were evacuated. At one point, the Chetco Bar Fire burned to within six miles of Brookings in Curry County. In the Columbia Gorge, the landmark Multnomah Falls Lodge survived encircling flames only because of determined firefighters.



Above: The Eagle Creek Fire disrupted travel and tourism in the Columbia Gorge. It also poured unhealthy levels of smoke into some of Oregon's most heavily populated counties.

Wildfires disrupted traffic and commerce all over the state, causing numerous road closures and delays. During the Eagle Creek Fire, both I-84 and the historic Columbia Gorge Highway were closed. Even the Columbia River was forced to close to boat and barge traffic.

Much of the state's population experienced extremely poor air quality due to wildfire smoke. Smoke poured in from neighboring states and as far away as British Columbia, mixing with heavy

smoke from a dozen persistent Oregon wildfires.

The Oregon Health Authority reported that in the smoke-filled first full week of September, visits to emergency rooms and urgent care centers in the state were 86% higher than expected. On Sept. 5, after the Eagle Creek Fire smothered the greater Portland area with smoke, there were 583 asthma-related visits to emergency rooms and urgent care – 20% more than expected for that date.

Excessive smoke caused the cancellation of events around the state, including outdoor performances at the Oregon Shakespeare Festival, Cycle Oregon, and the Sister's Folk Festival. Some 353 high school sporting events also had to be cancelled. An Oregon Tourism Commission survey revealed that hundreds of tourism and travel-related businesses suffered financial losses due to reduced tourist volume or forced business closures. A number of landowners lost standing timber valued in the millions. Replanting costs are estimated to be in the millions.

Hikers, mountain bikers, campers, backpackers, birdwatchers and others found many of their favorite trails and campsites closed for weeks and months. Many remain closed.

Right: Wildfires damaged or forced the temporary closure of trails, campsites and other recreation areas across the state.



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FINANCIAL HIGHLIGHTS

Base-level protection budgets increased to \$48 million in the 2017-19 biennium, up from \$43.8 million in the 2015-17 biennium. 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
- buildup of fuels on federal and private lands
- escaped fires from unprotected and under-protected lands
- a growing share of fires now occur in the expanding wildland–urban interface, where protecting communities adds to firefighting costs
- trends related to climate conditions, such as warmer temperatures and earlier snowmelt
- increasing safety requirements
- shifting federal fire policy
- contraction in forest-sector industries that are important partners in fire protection

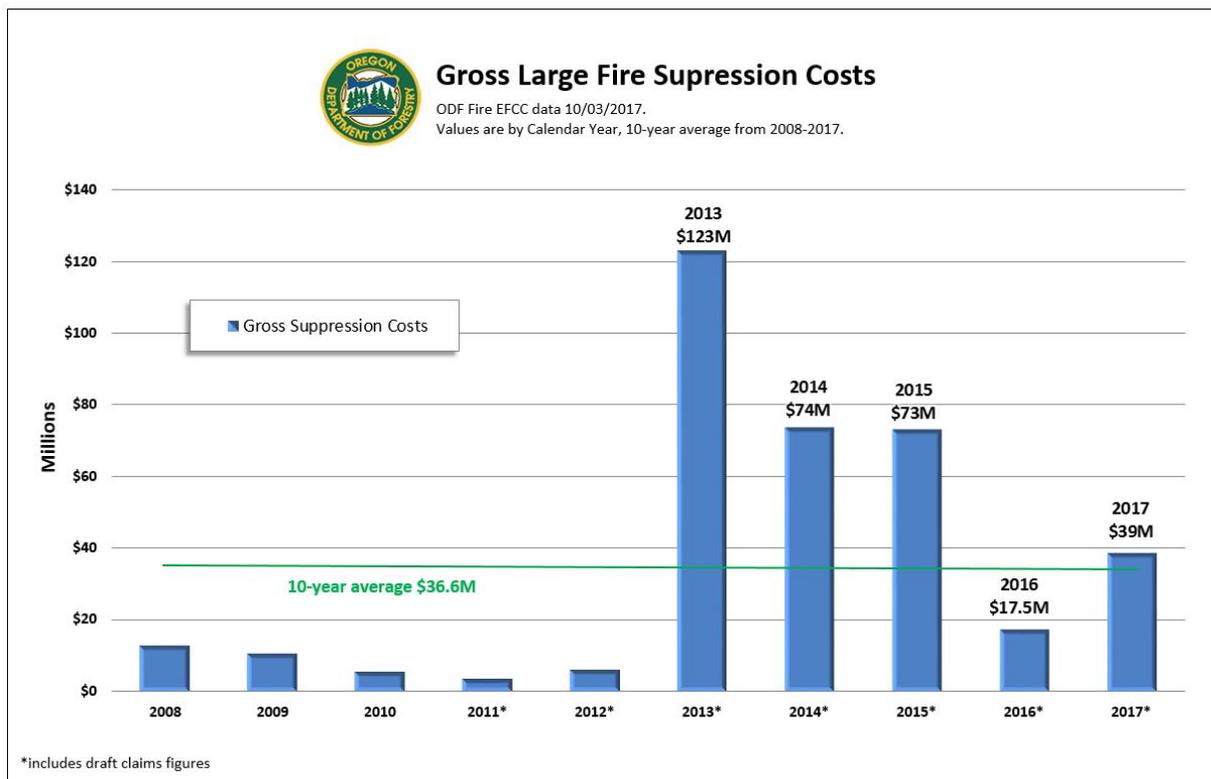


Figure 4. Although less costly than the severe fire seasons of 2013-15, large-fire suppression costs in 2017 were at least double or triple that of any of the five years before 2013.

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



ODF continued protecting landowners and the State's General Fund under a unique catastrophic fire insurance policy through Lloyd's of London. The policy covers \$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.

Above: Confidence by Lloyd's of London in Oregon's fire prevention and suppression efforts helped ODF maintain unique wildfire insurance coverage in 2017.

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INCIDENT MANAGEMENT TEAM DEPLOYMENTS

ODF's Incident Management Teams were called in to manage two complex fires this year. The first was the Flounce Fire in northeast Jackson County. Detected Aug. 7 in steep, difficult terrain, it required ground and aerial resources and more than a month to contain. IMT 1 managed that fire.

The second started on Aug. 26 near Riddle in Douglas County. Heavy smoke from other wildfires initially masked the Horse Prairie Fire, keeping smoke detection cameras and observation planes from seeing it. Finally located after it had already grown to 40 acres, wind whipped it into rough country where it spread 2,500 acres in a single day. IMT 3 and 1 were assigned to manage the fire. It was halted in early September after control lines were placed completely around it.

EXAMPLES OF DISTRICT SUCCESSES

Central Oregon – about 73% fewer acres burned

The 114 wildfires experienced in Central Oregon was down about 21% from the 10-year average of 145. However, total acres burned was down even more – by about 73%. That works out to almost 9,200 fewer acres burned in 2017 compared to the 10-year average. On average, each fire in Central Oregon over the past 10 years has burned about 80 acres. This year, each fire burned an average of only 21 acres. A chief reason is that potentially massive fires were prevented from growing out of control despite moisture levels in vegetation being near their driest levels ever. Between July 3 and Sept. 10 a half dozen potentially big wildfires in the district were controlled before they reached 200 acres. The Eagle Creek Fire in the Columbia Gorge burned 237 acres of land protected by the district. But Central Oregon ODF staff, coordinating with the fire's Incident Management Team, worked with landowner, operator and county resources keep the fire from moving farther east onto private and county forestland.

Klamath-Lake – 47% fewer acres burned

Compared to the 10-year average, fires caused by humans and lightning were both up a combined total of 60%. Altogether there were 50 more fires in the district (132 fires vs. a 10-year average of 82). However, 1,692 fewer acres burned this year, a reduction of 47% compared to the 10-year average. Put another way, the average acres burned per fire over the past 10 years has been 43. This year, it fell to just 14 acres.

Right: Steep terrain imposed physical challenges on hand crews digging control lines, like this trio on the Naylox Fire in Klamath County.



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Northeast Oregon – average fire size down by more than 90 acres

There were 20 fewer fires in this district compared to the 10-year average (59 vs. 79), a drop of 25%. Acres burned were down even more, by 91%, with just 642 acres burning this year. Compared to the 10-year average, 6,615 fewer acres burned in 2017. The average number of acres burned per fire was down dramatically as well. Each fire this year averaged 10.8 acres in size versus about 92 acres over the past decade.

Southwest Oregon – nearly a 10-fold drop in average number of acres burned per fire

Humans and lightning both caused more fires in this district in 2017. There were more than 100 additional fires this year - up 47% compared to the 10-year average. However, aggressive initial attack ensured those fires burned far fewer acres – 1,003 acres by year's end compared to the 10-year average of 6,170. A good example is the lightning storm of June 25. Some 1,500 lightning strikes that day sparked 20 separate wildfires, all of which were kept to one acre or less by ODF crews and partner agencies. In early August temperatures in the district soared above 110 degrees for several days, accompanied by dry lightning storms. Although the Flounce Fire, which was detected Aug. 7, would burn 587 acres of steep, difficult terrain before being contained, just under a hundred other fires were knocked down at small sizes. As a result of such efforts, each fire in 2017 in the Southwest Oregon District was only about a tenth the size of the



average fire over the past decade (2.8 acres this year vs. almost 26 acres).

Above: Smoke rises from the Flounce Fire. At 587 acres burned it was the largest wildfire in ODF's Southwest Oregon District. Average fire size in the district this year was under 3 acres.

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WILDFIRE CAUSES

Fire	Total acres burned	ODF-protected acres burned	Location	Cause
Chetco Bar	191,125	22,186	Curry County	Lightning
Horse Prairie	16,436	16,436	Douglas County	Human
Eagle Creek	48,831	1,537	Columbia River Gorge	Human
Milli	24,025	1,334	Deschutes County	Lightning
Jade Creek	784	784	Lake County	Lightning
Flounce	587	587	Jackson County	Lightning
Crane Creek	607	575	Lake County	Lightning
Naylox	440	440	Klamath County	Human

Figure 5 shows the eight largest wildfires ranked by acres of ODF-protected land burned. Three of the four largest wildfires experienced by ODF this year spread from land protected by other jurisdictions.

HUMAN-CAUSED FIRES

Human caused fires were up in 2017. The number of human-caused fires on ODF-protected land was 18% above the 10-year average – 797 wildfires compared to an average of 675. In every single month during 2017, people caused more wildfires on ODF-protected land than lightning. About three-quarters (73%) of all wildfires affecting ODF protected land in 2017 were human caused. Those wildfires burned 45% of all the acres burned on land protected by ODF.

Compared to the 10-year average, fires caused by people in 2017 burned three and a half times more acres (21,426 acres vs. 6,114). The higher number reflects the impact of one large human-caused fire – the Horse Prairie Fire (the exact cause of which is still being investigated). When this fire is included, the average size of a human-caused fire in 2017 totals around 27 acres. Without the Horse Prairie Fire, the average size drops to just 6 acres per fire.

Members of the general public, such as campers, fishers, hunters, transients and motorists, caused 32% of the fires and 41% of the acres burned. Public utilities, loggers and other forest workers, ranchers, farmers and other rural property owners started 41% of wildfires. However, the fires they

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caused represent only 4% of the total acres burned. Of all human-caused fires, equipment use and debris burning started more than half – some 437.

ODF responded to an additional 370 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 2,027 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.

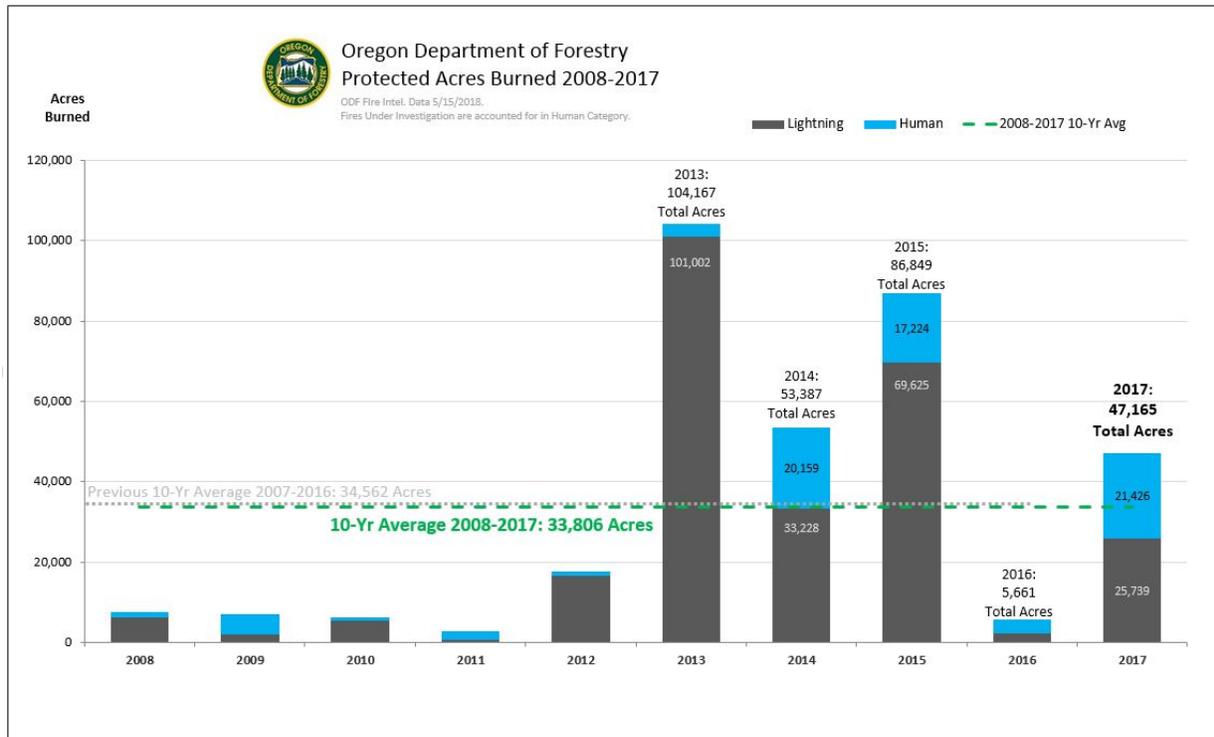


Figure 6. Protected acres burned for 2008 through 2017. While only 27% of fires were started by lightning, those fires burned over half (55%) of the acres damaged.

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LIGHTNING-CAUSED FIRES

Lightning occurs most often in the Cascade Mountains and the eastern half of the state, which has the most lightning-caused fires. The amount of lightning varies by storm and from year to year. The most dangerous storms for starting fires are those where lightning is not accompanied by rain (dry lightning).

In 2017, some 35,833 lightning strikes were recorded over the summer, most in mid-July and the second week of August. The return of significant amounts of lightning resulted in the number of lightning-caused wildfires on ODF-protected lands being close to the statistical average - just 4% above it. There were 293 lightning-caused wildfires on land ODF protects, close to the 10-year average of 278. This represents about 27% of all fire starts on ODF-protected land. By contrast, the year before, lightning caused only 74 fires – helping make 2016 the year with the fewest wildfires in the 21st century so far.

Statewide, fires started by lightning traditionally burn more acres than human-caused fires. This was also true on ODF-protected lands. While lightning caused only 27% of wildfires on ODF-protected land, those fires represented 55% of all acres burned. In all, 25,739 ODF-protected acres burned in lightning fires. The lightning-caused Chetco Bar Fire was responsible for 84% of all ODF-protected acres that were burned by lightning-caused blazes in 2017.

The average area burned by a lightning-caused fire on ODF-protected land this year was 84 acres. That is about 17% lower than the 10-year average size of 102 acres. The lower average size reflects the success ODF had in putting out many lightning-caused fires while they were relatively small.

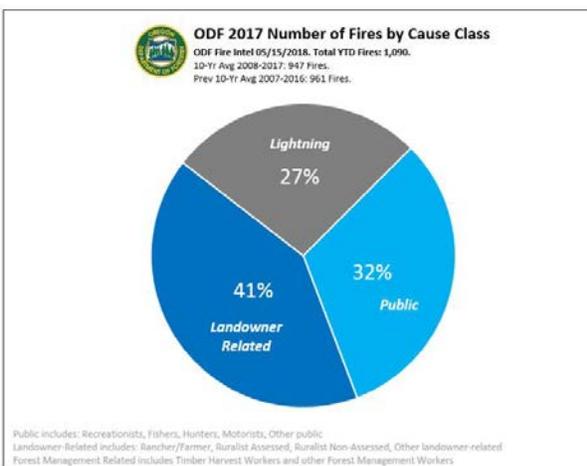


Figure 7. Number of fires on ODF-protected land by cause.

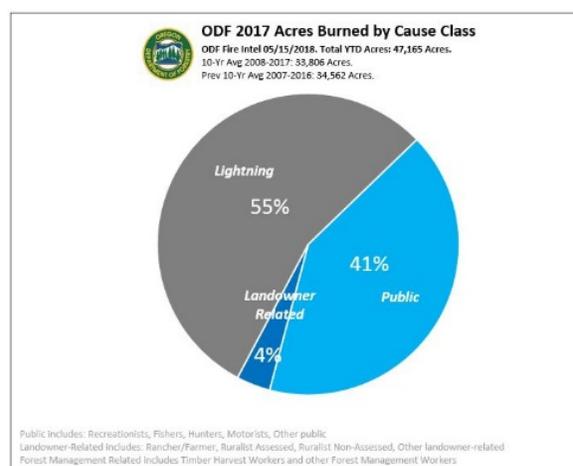


Figure 8. Protected acres burned by cause.

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PREVENTION

Because humans cause the majority of wildfires on lands protected by ODF, the agency works closely with fire prevention organizations, such as Keep Oregon Green and the Oregon Office of the State Fire Marshal. This year's campaign centered on people heading to Oregon's outdoor areas to view the Aug. 21 solar eclipse. Billboards, freeway message signs, and public service announcements drove home that the eclipse was happening during peak wildfire risk. The messaging appears to have hit home. Despite tens of thousands of people flocking into fire-prone central and eastern Oregon, the number of wildfires on ODF-protected land was actually below average for the week before and after the eclipse.

Top Priority: Fire Prevention

"Human-caused fires, especially debris burning and illegal, abandoned campfires, continue to be of concern. Raising awareness of steps people can take to prevent needless wildfires is a top priority."

– Ron Graham, Deputy Chief, ODF Fire Protection

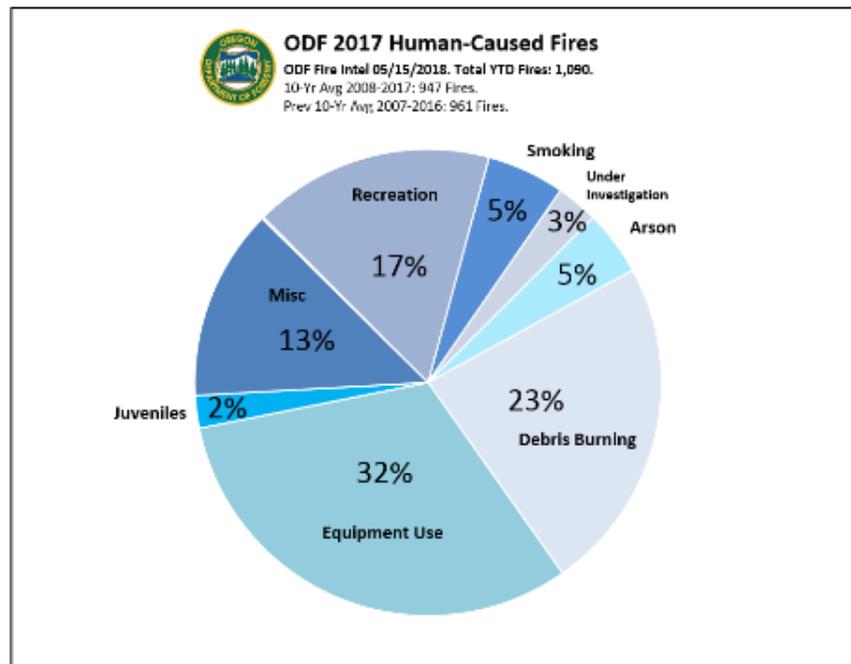
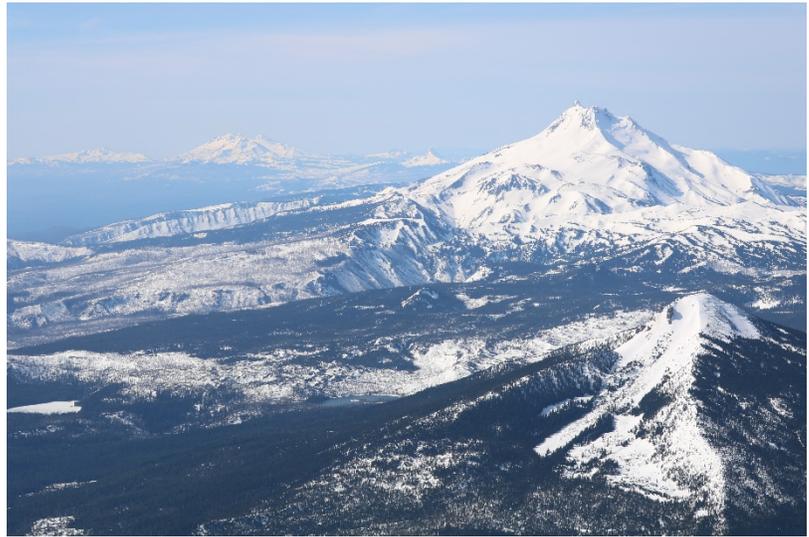


Figure 9. Number of fires on ODF-protected land by cause.

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LOOKING AHEAD

Above-normal snowpack levels and near record rainfall long into the spring pulled Oregon officially out of drought in 2016-17. However, long-term climate projections indicate that the mean annual temperature across most of the western U.S. will continue to increase for the rest of this century. Higher temperatures will cause earlier snowmelts and faster loss of moisture from soils and vegetation in spring and summer. Other impacts may include shifts in the range and type of vegetation, more frequent and intense outbreaks of tree-killing pests and diseases, and a reduction in snowpack duration that will limit summer water supplies.



Above: Earlier melting of Oregon's snowpack will impact summer water supplies.

These climate-related changes are taking place as wildfire fuels, particularly on federal lands, have built up to unnaturally high levels in our state's forests. 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, especially during droughts. Dead and dying trees add to the amount of dry, flammable fuel in forests. 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 uncertain federal support and state budgets stretched thin to meet multiple priorities, 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 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.

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FIRE OPERATIONS

The **Salem Coordination Center** (SCC) provides qualified, cost-effective and timely resources to wildland fires and other emergency incidents, both locally and in other parts of the nation. SCC coordinates the mobilization of available resources for anticipated and existing incidents, regardless of location or agency affiliation. Resources mobilized in 2017 included hand crews, engines and crews, and aircraft, as well as helitack and rappel units from Alberta, Canada.

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 2017 fire season:

- SCC supported two Type 1 ODF incident management team (IMT) deployments to the Flounce and Horse Prairie fires.
- Region 6 dispatched 204 Type 2 (Interagency Firefighting Crew Agreement (IFCA) contract crews, which were assigned for 1,100 days, throughout the region and nationally. From April through November, ODF assisted multiple states, including Arizona, California, Idaho, Montana, Nevada Utah and Washington. The largest out-of-state deployments were to California. Twenty-five ODF fire engines were sent to help with Northern California wildfires in October. A further 25 went in December to battle the Thomas Fire in Southern California.
- The Aviation Desk in SCC tracked and coordinated the use of 16 aircraft prepositioned across the state under exclusive-use agreements with private contractors.
- During 2017, SCC assisted in coordinating the deployment of 88 ODF Overhead personnel to assist with firefighting activities in multiple states, including Arizona, California, Colorado, Florida, Georgia, Nevada, Texas and Washington.
- In addition to dispatch responsibilities, SCC also submitted the daily fire statistics report in FAMWEB and conducted weather quality control on weekends. This ensured the accuracy of weather data.

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Support received:

- Inmates from 10 Oregon Department of Corrections (DOC) institutions responded with more than 100 fire dispatches around the state. These inmate firefighters worked side-by-side with agency and contract firefighters to help put out wildfires. Inmates also provided support services to fire teams at fire camps, cooking meals, distributing bottled water, doing laundry and collecting and disposing of trash.
- Out-of-state resources helping ODF fight fires in Oregon included fire managers from Florida and North Carolina as well as over a dozen fire engines from Washington State, California and New Mexico. The latter state also sent three 20-person hand crews. Two rappeler and one helittack crew from Alberta, Canada helped out in eastern Oregon.
- ODF's severity program received assistance from July 1 through Oct. 7 for a total of 1,473 flight hours.



Left: Deputy State Forester Nancy Hirsch greeted Canadian helittack and rappel crews who came to help in August when Oregon resources were fully engaged on wildfires statewide.

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. This year Fire Cache sent to fires across the state pre-loaded supply vans, large mobile kitchens, shower and washing facilities, and trailers for communications, information technology, GIS and field administration units.

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TRAINING

The **State Fire Assistance (SFA) Classroom Training Fund** was used to support 63 students taking 22 courses, including topics such as:

- Command and General Staff: ICS-300, ICS 400, S-420, Critical Incident Management
- Leadership: L-280, L-380, L-381, and L-480
- Aviation: S-270 – Basic Air Operations, S-371 Helibase Manager, S-372 Helicopter Manager
- Dispatch: D-311 and D-312
- Finance: S-481 Incident Business Advisor
- Fire weather/Behavior: S-390, S-490 Advanced Fire Behavior Calculations, S-491, RAWS
- Fire Investigation: FI-210
- Management: M-581 Fire Program Management
- Plans: S-443 Infrared Interpreter
- Training: M-410 –Facilitative Instructor

Eight individuals did on-the-job training for Helibase manager, Helicopter Training Academy Food Unit leader, and Deputy agency administrator.

Two of the courses were out-of-state training (Helicopter Training Academy in Arizona and RAWS in Boise, ID).

Other training provided by Salem ODF includes:

- Two sessions of the RT-130 Fireline Safety Refresher for Salem staff
- RT372 Helicopter Manager Refresher, RT378 Air Attack Group Supervisor Refresher
- S-203 Introduction to Incident Information
- Facilitation of nominations for Redmond and out-of-state fire training
- Agency Administrator training
- Incident Qualification System training
- Completed 29 individual qualifying police and fire eligibility review forms and about 100 Police and Fire checks in IQS that did not meet eligibility requirements.
- Produced the 2017 incident qualification cards and master record data entry review for Salem staff

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The Fire Protection training coordinator participated in:

- PNWCG – Training Committee (Region 6 Training officers – Policy)
- Initial Attack Training Committee
- Strategic Work Force Planning Work Group
- ODF IMT Conference Planning Committee (Development and delivery of a one-day conference)
- ODF Protection Training Committee
- Northwest Interagency Training Zone Committee (Training schedule coordination in the Northwest Oregon Area)
- Pre-season Module 2-5 meeting with Area Executive Support and SCC

FIGHTING FIRE FROM THE AIR

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 on a limited-duration basis in 2016 to support the growing administrative needs of the program to include procurement, policy, training and reporting. The coordinator position was made permanent after the 2017 fire season.

ODF fire managers successfully trialed infrared sensors mounted on remotely piloted vehicles on the Horse Prairie and Eagle Creek wildfires in 2017. The infrared images allowed the managers to see through heavy smoke so they could form a real-time picture of fire activity. The technology will be available to ODF fire managers as appropriate in 2018.



Above: ODF fire managers got to trial use of infrared sensors mounted on remotely piloted vehicles in 2017. The one above was used on the Horse Prairie Fire. It gave fire managers a real-time picture of fire activity so they could engage resources more safely and effectively.

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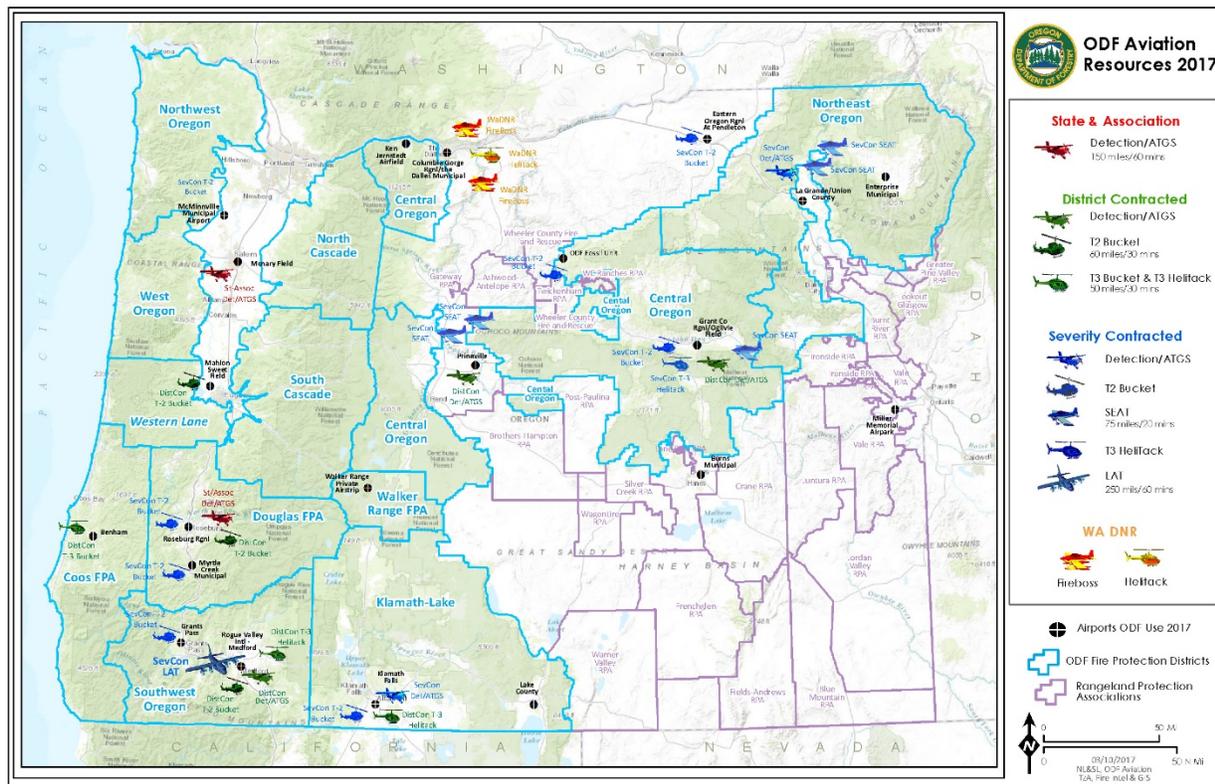


Figure 10. Map showing placement of firefighting aircraft available to ODF in 2017.

SEVERITY AIRCRAFT STATISTICS

Severity aircraft had a total of 1,477 flight hours, 612 more than in 2016 and nearly as many as during the busy 2015 fire season. Helicopters flew 55% of all flight hours in 2017. Fifty-two percent of flight hours were on ODF fires and 48% 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 63,000 gallons of fire suppressant gel (FireIce) to incidents in Oregon and Washington. More detailed statistics can be found in the Annual Aviation Report.

Right: An airtanker drops retardant on the Buck Butte Fire in eastern Oregon.



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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.

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 2017 through April 2018, ODF has acquired and allocated over \$9.1 million of useful equipment statewide through FFP property. The DOD equipment has been modified into fire and rescue equipment protecting equipment across the state. In addition, during the same period ODF

has distributed \$2.2 million of FEPP engines and equipment loaned by the U.S. Forest Service.



Left: Department of Defense excess equipment has been modified into fire and rescue equipment protecting communities statewide.

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Rangeland protective associations have been allocated 25 trucks, trailers, graders, tenders, etc. during this period alone, in addition to radios from multiple sources. These enable communication with state and federal agencies. These associations have been allocated over 300 pieces of rolling stock into their inventories over the last several years.



Rural fire departments and protective

associations have been allocated 48 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' by 6' tenders, generators for earthquake preparedness, structural fire engines, rescue vehicles, ambulances and large-volume pumps.

Above: Excess federal equipment ODF acquired through the FFP Program benefits small-town and rural fire departments as well as rangeland association firefighters, such as these in Jordan Valley in eastern Oregon.

ODF units and districts have also benefitted from the programs. In the last 14 months these units and districts have been allocated an additional 17 units, Type 4 and Type 6 wildland fire engines, truck tractors they modified to become water tenders, as well as pumps, trailers and generators.

A total of over 140 pieces of fire-fighting capable heavy equipment has 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.

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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 training helps fire investigators determine a wildfire's cause, including whether arson was involved. About one wildfire in 25 is caused by arson, which is a crime.

Above: ODF staff cooperate in investigating fires on state forests and other protected lands. The agency also offers inter-agency trainings in investigative techniques, such as this one in Roseburg in 2017.

Once a cause is determined, where appropriate the Division works to recover fire suppression costs. It does this whenever a responsible party is willful, malicious or negligent in the fire origin. It also seeks recovery in cases where a person is required to make a reasonable effort to control and put out a fire and fails to do so.

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.

SMOKE MANAGEMENT PROGRAM

Daily weather analysis and development of western, northeast, and south-central Oregon forecasts and burning instructions are primary responsibilities of the Smoke Management section. Currently the section is responsible for quality control of data from 20 agency-owned fire weather stations. It also provides products and maintenance for the National Fire Danger Rating System. Fire managers across the state depend on this system 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
- complaint investigation.

The section also provides support to groups 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 on a regular basis by providing instructors to the RX-410 (Smoke Management Techniques) course and RT-300 (Prescribed Fire Burn Boss Refresher).

With the addition in 2016 of a smoke management field coordinator, the section is better able to help districts and landowners comply with the Smoke Audit Program. The field coordinator helps maintain records, standardize fuel-loading estimation, perform independent fuels inventories, and look for ways to improve the program. Department staff are excited to develop relationships and foster support for the Smoke Management Program through statewide site visits.

Smoke Management can now provide a stronger channel for feedback between the field and the Salem office, while looking for opportunities to standardize processes that will improve communication efficiency. The section now has the capability to assess internal and external training needs for fuel-loading calculations, smoke emissions, and regulations. It can also now provide specialized training to field staff and Oregon communities. It can also educate the public on how prescribed burning benefits public safety and forest health, and how smoke is managed to minimize emissions. The 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

Tom Jenkins,
Meteorologist

Christina
Clemons, Smoke
Management
Field Coordinator

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BUILDING THE TEAM

ODF's Smoke Management unit has been providing critical and timely smoke forecasts for over 40 years. In 2017, heavy wildfire smoke that blanketed the state for much of the summer raised public concern about all sources of smoke. At the same time, there is renewed national focus on forest restoration and reducing fuel loads to lower the risk of catastrophic wildfire. This has increased the demand to treat more acres with prescribed burning, adding to Smoke Management's workload. Fortunately, one of our permanent meteorologists returned from a year-long military tour of duty.

In 2017, ODF forecasters provided services not only for those managing prescribed fire, but also delivered forecast advisories about unusually wet and snowy winter conditions.

Studies conducted by ODF show that covering piles of wood waste with a polyethylene cover to keep them dry greatly reduces smoke without adding additional pollutants. Their use is now encouraged.



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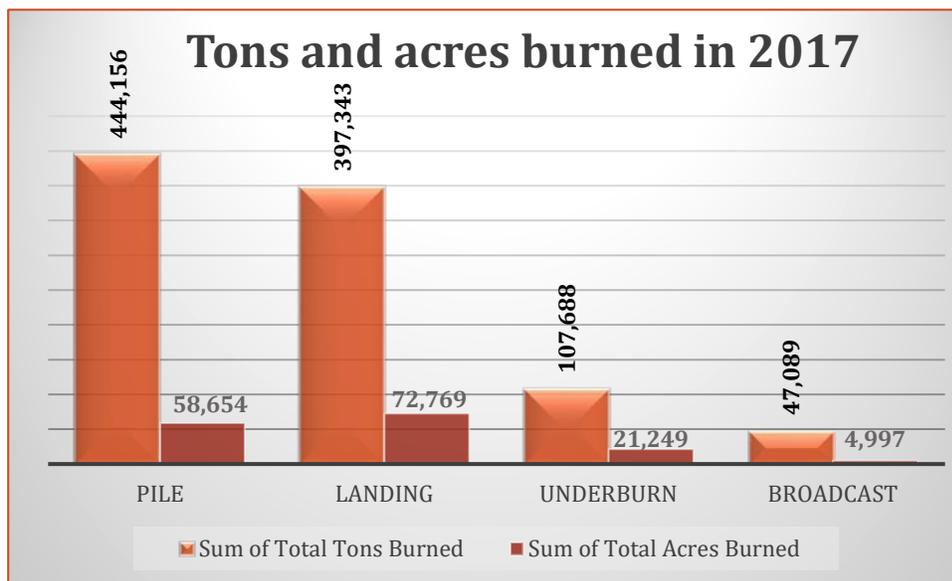


Figure 11. Prescribed fire tons and acres burned by type in 2017.

SMOKE PROGRAM ACHIEVEMENTS

Program achievements in 2017 include a successful campaign to audit burns. Thirty-seven audits were completed around the state, which exceeded the goal. Out of the 2,846 units burned, 10 smoke intrusions were also investigated for a 0.35% burn/intrusion ratio.

On average about two-thirds of the wood waste that burners register to burn actually gets burned. The above average snowpack and wet spring significantly reduced broadcast burns in 2017.

Fortunately, emission-reduction techniques continue to be widely employed. One example is gathering wood waste into piles and burning those instead of burning an entire clearcut. Another is alternatives to burning, such as lopping limbs and dead trees and scattering them to decompose on the ground. These alternatives typically make up a greater share of wood waste treatment in Oregon than burning.

The final report of the **Polyethylene (PE) 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.

The new **Smoke Database System (SDS)** completed its test pilot in October 2016, field training in December 2016, and launched in January 2017. The cleaner, simplified look has had positive reviews. Already in the works is version 2.0 with bug fixes.

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SMOKE MANAGEMENT PROGRAM REVIEW

The Smoke Management Program was reviewed this year by an appointed committee representing diverse perspectives, including landowners, operators, public health, environmental organizations and tribes. The major issue they focused on was the future of Oregon’s prescribed burn policy. The committee met from spring 2017 into early 2018 to provide input on potential improvements to the Smoke Management Review Program.



Above: The Oregon Board of Forestry and Environmental Quality Commission toured ODF’s Western Lane District to learn first-hand how foresters work to minimize smoke emissions and keep smoke away from heavily populated areas. Here, District Forester Link Smith explains under what weather conditions controlled slash burns are allowed.

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Left: The Hemlock Fire in Western Lane District broke out near the end of May. ODF firefighters and local cooperators kept the fire to 25 acres, sparing nearby homes.

CONTACT INFORMATION

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