FIRE SEASON SUMMARY

A REVIEW OF SEASON ACTIVITY, DNR'S FIRE PROGRAM, AND OUR MAJOR ACCOMPLISHMENTS

WASHINGTON DEPARTMENT OF NATURAL RESOURCES

2019

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We wish to thank the assistant region managers and district managers for fire operations, assistant division managers of the Wildfire Division, division and region program managers, and each member of our staff that contributed their data and narratives to make this report possible.

WILDFIRE PROGRAM AT A GLANCE

PROTECTION RESPONSIBILITY

The Washington Department of Natural Resources (DNR) Wildfire Program has direct fire suppression responsibility for nearly 2.6 million acres of state forestlands and another 10.5 million acres of private and tribally-owned forestlands. We also work closely with our federal and local partners to provide a coordinated and thorough response for large fires in the state via Incident Management Teams (IMTs) and agency resource sharing, regardless of jurisdiction.

STATUATORY AUTHORITY

Our authority to suppress, mitigate, and regulate fire activity across Washington is granted by the legislature in **Chapter 76.04** of the Revised Code of Washington. We implement this authority by the rules outlined in **Chapter 332-24** of the Washington Administrative Code, various intra- and inter-agency agreements, internal policy, strategic plans, and in accordance with applicable federal laws.

GET IN TOUCH!

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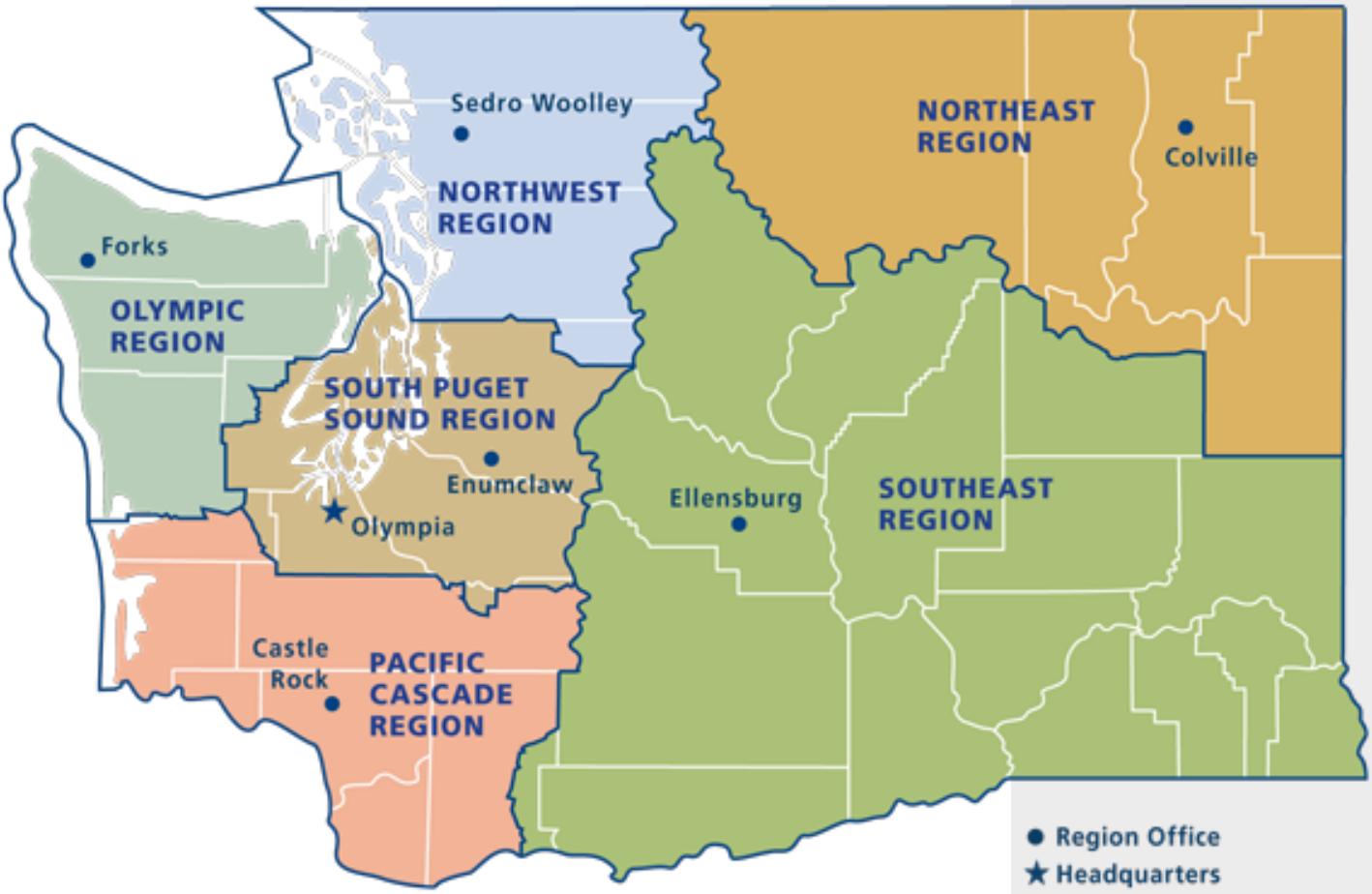
WILDFIRE PROGRAM AT A GLANCE

PROGRAM STRUCTURE

The Wildfire Program's mission is carried out by six regional offices that provide frontline fire management and one headquarters office that serves as the administrative hub for policy, budget, and senior management of programs like prevention, training, logistics, and regulation.



FUNDING

In 2019, the legislature provided $16.5 million from the state general fund for fire suppression activities. Additional funding, like the tax revenue generated from Disaster Relief and Landowner Contingency programs, provided another $6 million for qualifying fires. Supplemental budget requests provided the program an additional $80.5 million after the true costs of 2019 were realized.

WILDFIRE PROGRAM AT A GLANCE

RESOURCES

654 PERMANENT AND SEASONAL STAFF

25 CORRECTIONAL CREWS

121 STAFFED ENGINES

9 HELICOPTERS

STAFF AND ENGINES

	PERMANENT STAFF	SEASONAL STAFF	ENGINES
HEADQUARTERS	37	2	-
NORTHEAST	34	208	41
SOUTHEAST	16	127	29
SOUTH PUGET SOUND	10	40	13
NORTHWEST	10	44	10
OLYMPIC	8	34	8
PACIFIC CASCADE	12	72	19

CORRECTIONAL CREWS

	PERMANENT STAFF	CREWS	CREWMEMBERS
NORTHEAST	5	4	75
SOUTH PUGET SOUND	9	7	105
OLYMPIC	9	7	105
PACIFIC CASCADE	9	7	105

AVIATION PROGRAM

HELICOPTERS	PERMANENT STAFF	HELITAK STAFF	CONTRACT AIR TANKERS	CONTRACT AIR ATTACK
8 + 1 lease	22	49	5	2

MISSION, VISION, AND VALUES

Photo courtesy of Kari Greer, U.S. Forest Service

VISION

All Washington —
safely managing and living with wildland fire

MISSION

1. To acknowledge the role of fire in Washington's wildlands
2. To provide exemplary service and leadership in the effective and efficient protection of human life, natural resources, and property from wildfire
3. To promote the role of healthy forests in minimizing the unwanted effects of wildfire to enhance the quality of life for Washington's citizens
4. To prevent and aggressively suppress wildfires in a safe manner

OUR VALUES

PUBLIC, COMMUNITY, AND FIREFIGHTER SAFETY

ENDURING STEWARDSHIP

VISIONARY LEADERSHIP

INCLUSIVE DECISION-MAKING

CREATIVE SOLUTIONS

RESPECTFUL RELATIONSHIPS

CAPABLE, DIVERSE, AND SUSTAINABLE WORKFORCE

2019 FIRE SEASON NARRATIVE

OVERVIEW OF FIRE CONDITIONS

At the end of the 2018 fire season, significant drought concerns remained across the entirety of the state. Fortunately, above average rainfall through November and December 2018 alleviated much of this concern, bringing about near normal conditions to start 2019. In February and March, an unusual short-term drought resulted in record low rainfall totals for much of western Washington and snowpack totals that were only 10% of normal. These significantly dry conditions combined with a rare east wind event around late March to produce 45 wildfires (all resulting from escaped debris burns) in western Washington during a three day period.

High fire activity continued through mid-April, until a late but wet spring set in across the state, leading to a return of near normal conditions. The moisture provided during April and May resulted in an abnormally thick cheat grass crop in the Columbia Basin, which began to cure during late May and early June. Thus, the first large fire of the season, 243 Command, started in the grasslands of the Columbia Basin due to debris burning and burned 22,000 acres during the first week of June.

East winds in March contributed to over 45 wildfires in western Washington

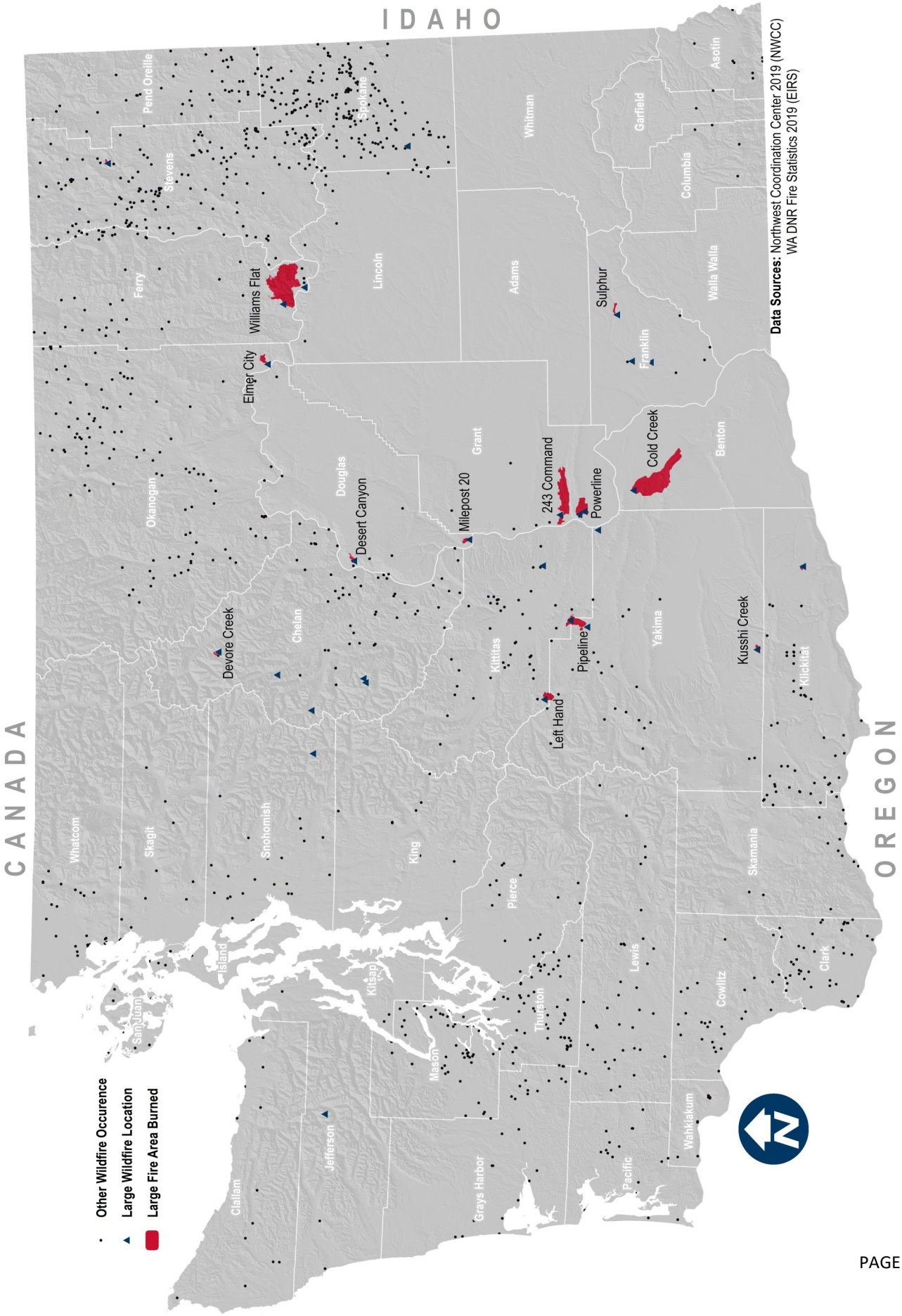
Through June and early July, intermittent moisture and cooler temperatures kept fire danger near or slightly below normal. Summer conditions finally came around the third week of July, coinciding with peak lightning season. On July 23rd, lightning ignited the Pipeline Fire in Kittitas County, which ultimately burned 6,515 acres. Then on August 2nd, another round of lightning resulted in the Williams Flats Fire in Okanogan County on the Colville Reservation. This fire was the largest of the year, burning 44,446 acres over twenty-three days. Although other large fires occurred through this period, the majority were either state mobilization (Cold Creek, Juniper Wind Tower, Desert Canyon, Powerline) or federal. Still, DNR fire occurrence remained above normal until late August when fire season turned into flood season as excessive rains fell across much of the usual fire-prone areas. These rains continued through September, resulting in precipitation amounts 200 to 400% of normal! Although fires continued to occur with near-average frequency, this extended period of moisture effectively ended much chance for fires to grow into large, severe events and brought the 2019 season to a close.

LARGE FIRES* WITH DNR JURISDICTION

Fire Name	Total Acres Burned	Start Date	Region	County	Cause
Williams Flats	44,446	8/2/2019	Northeast	Okanogan	Lightning
Pipeline	6,515	7/23/2019	Southeast	Kittitas	Lightning
Alkali Canyon	4,000	6/20/2019	Southeast	Yakima	Undetermined
Elmer City	1,979	6/23/2019	Northeast	Okanogan	Misc. (Structure Fire)
Desert Canyon	1,456	7/23/2019	Southeast	Douglas	Undetermined
North Mill Creek	497	8/8/2019	Northeast	Stevens	Under Investigation
Swanson Mill	281	7/3/2019	Northeast	Okanogan	Misc. (Other)
Rendezvous	180	7/31/2019	Northeast	Okanogan	Debris Burn
Lundstroms	150	7/5/2019	Northeast	Ferry	Undetermined
Jack Wells Two	116	5/9/2019	Northeast	Okanogan	Under Investigation
Spring Coulee	107	9/1/2019	Northeast	Okanogan	Under Investigation
Graham	104	7/24/2019	Northeast	Spokane	Lightning
Swofford	103	3/19/2019	Pacific Cascade	Lewis	Debris Burn
Wildwood Lane	85	3/19/2019	Pacific Cascade	Wahkiakum	Debris Burn
Rogers Bar Butte	55	4/29/2019	Northeast	Ferry	Undetermined
Jackson Road	45	3/20/2019	South Puget Sound	Pierce	Under Investigation
Crescent	44	3/31/2019	Northeast	Lincoln	Debris Burn
North Sol Duc	28	4/29/2019	Olympic	Clallam	Debris Burn
Bear Creek	26	6/10/2019	South Puget Sound	Kitsap	Under Investigation
North Maple	24	3/20/2019	Pacific Cascade	Cowlitz	Debris Burn
Kinley Lane	21	3/31/2019	Northwest	Skagit	Debris Burn
Roy Y	20	7/31/2019	South Puget Sound	Pierce	Undetermined
Old Barn	18	3/20/2019	Pacific Cascade	Lewis	Debris Burn
Standard Road	15	3/18/2019	Northwest	Whatcom	Undetermined
Horsely Rd	12	3/18/2019	Pacific Cascade	Cowlitz	Debris Burn
Crazy Man Mountain	12	10/29/2019	Pacific Cascade	Lewis	Debris Burn
Mox-Chehalis	12	3/20/2019	South Puget Sound	Grays Harbor	Under Investigation
368Th St	12	4/30/2019	South Puget Sound	Pierce	Under Investigation

***Large fires are those with acres burned in the top 3% for each DNR region based on calculations from the last 10 years.**

MAP OF FIRE OCCURRENCES

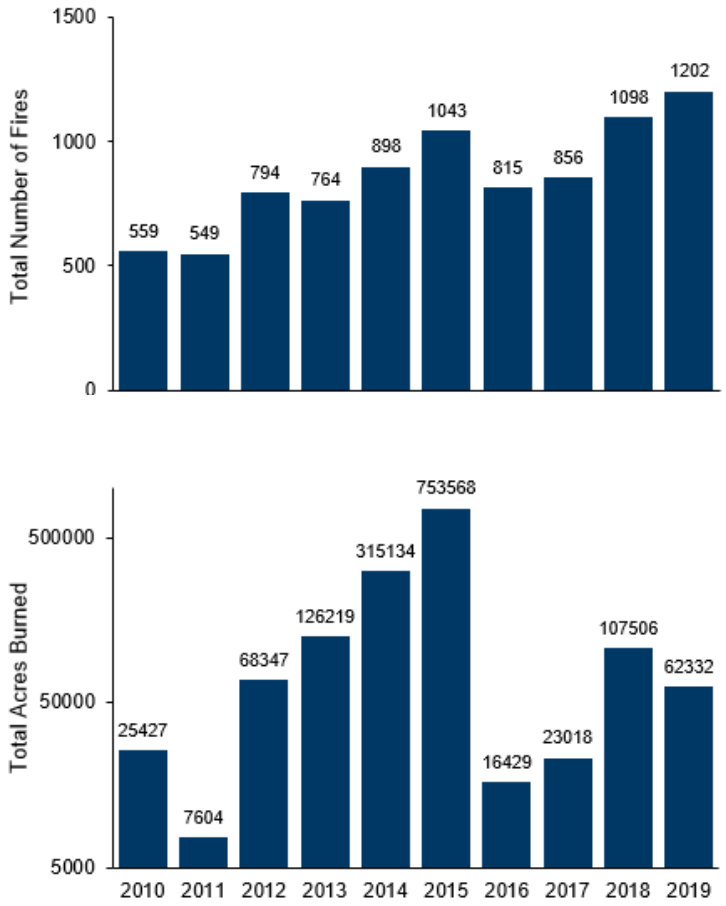


2019 FIRE SEASON STATISTICS

OVERVIEW

Per the Office of Financial Management, DNR's fire program is required to meet one performance deliverable annually: keep 95% of fires under ten acres. In 2019, 1,141 of the 1,202 fires occurring on DNR protection were contained under this threshold, satisfying this deliverable.

DNR generally measures fire season severity based on the total number of fires and the total number of acres burned in a given year compared to a running average of the last ten years. In 2019, the total number of fires classified as DNR protection was 1,202. This is 344 more fires than the running average from 2010—2019 and higher than every other year during the same period, including the catastrophic fire season of 2015. Although this number seems quite alarming on its own, the total number of acres burned on DNR protection was only 62,332 or 41% of normal (150,558 average annual acres). Since DNR's fire mission is primarily focused on suppressing new fires, it stands that 2019 was an above average fire season for fire activity, although fires seldom became large or complex enough to require incident management team mobilization or resources external to the agency.



Total number of fires and total acres burned on DNR protection from 2010 to 2019.

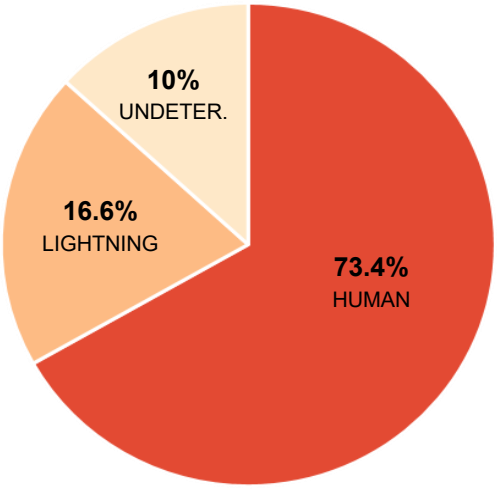
In comparing this year to the 92-year historical record of fire occurrence on state lands (1928 — 2019), 2019 ranks 16th in total acres burned and 34th in total number of fires.

In 2019, there were 28 large fires, defined here as those in the top 3% acres burned for the region based on the most recent 10-years of data. We use this methodology since fires west of the Cascades may be quite small relative to those occurring east of the Cascades, although equally severe for the local unit and community. Overall, the 2019 fire season ranks as the fourth highest season for large fires in the last ten years.

2019 FIRE SEASON STATISTICS

FIRE CAUSES

In 2019, 67% of fires were human-caused. Another 20% of fires were caused by lightning while 13% of fires have undetermined causes. Interestingly, the number of lightning-ignited fires this year was 68% higher than the 10-year average of 143 fires per year. This result was mostly influenced by a considerable 'lightning bust' on July 23rd which resulted in 54 new fires. **The 10-year averages for fire causes are: 73.4% human, 16.6% lightning, and 10% undetermined.**

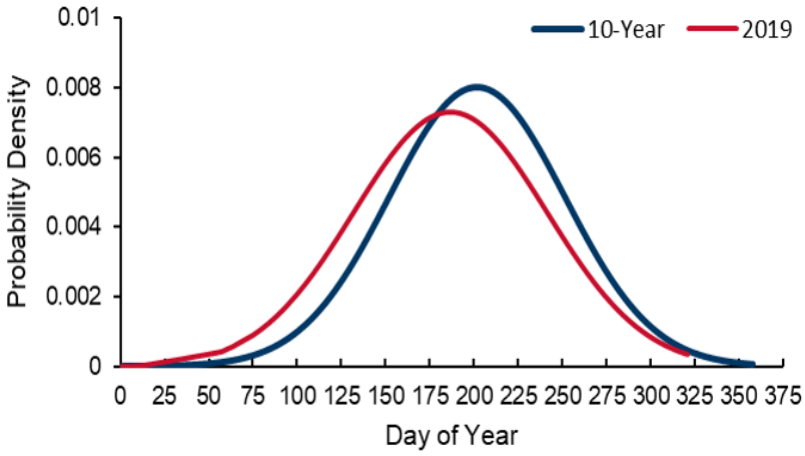


10-year Fire Causes on DNR Protection

The most notable result from examining sub-cause information this year was the significant increase in debris burning fires. In 2019, 302 fires were reported as escaped debris burns which is almost double the 10-year average of 160 fires annually. In fact, debris burning fires made up 25% of the total fires this year. There were 26 arson caused fires, although this value is typical. All other sub-causes are in the range of normal values.

SEASON TRENDS

The 2019 fire season started and ended earlier than the 10-year average season. In 2019, the mean fire day was 187 (July 6) and the statistical fire season* occurred from day 132 (May 12) to day 242 (August 30). In comparison, the mean day of fire season for the 10-year period is 202 (July 20th). The statistical fire season ranges from day 152 (June 1) to day 252 (September 9) or about 100 days. Note that this is computed in terms of new fire occurrence, and does not consider long-duration, large fires that may linger into late September or early October.



*The 'statistical' fire season' is defined as days within +/- 1 standard deviation of the mean day of fire occurrence in a given year.

FINANCIAL HIGHLIGHTS

FISCAL YEAR	GENERAL FUND STATE	BUDGET STABILIZA-TION	DISASTER RELIEF	GENERAL FUND FED-ERAL	GENERAL FUND LOCAL	LANDOWNER CONTINGEN-CY	CLARK MCNARY	TOTAL EX-PENSES
2010	22,670,000	0	1,560,869	1,457,908	12,708	172,728	0	**25,874,213**
2011	11,447,289	0	3,439,131	1,376,322	0	99,113	0	**16,361,855**
2012	8,030,000	0	3,813,160	1,344,727	0	93,677	0	**13,281,564**
2013	41,838,749	0	1,186,840	4,054,752	0	140,434	0	**47,220,775**
2014	25,271,000	0	1,073,920	4,076,600	164,323	309,090	0	**30,894,933**
2015	10,906,547	62,704,000	3,926,079	11,416,009	90,323	184,755	0	**89,227,713**
2016	0	130,487,953	7,661,665	7,360,242	71,173	976,433	0	**146,557,466**
2017	19,751,000	23,618,024	2,868,391	3,204,281	68,435	630,013	2,035,699	**52,175,842**
2018	44,455,000	19,808,000	10,560,937	19,151,942	1,166,285	405,880	0	**95,548,044**
2019	29,044,000	42,342,000	5,489,063	14,236,458	987,773	6,660,861	15,539,191	**114,299,346**
TOTAL	**213,413,585**	**278,959,976**	**41,580,055**	**67,679,241**	**2,561,019**	**9,672,984**	**17,574,890**	**631,441,750**

DNR Fire Program Expenditures by Fund for 2010 to 2019

SUMMARY OF SUPPRESSION COSTS

Financial highlights reported here are on a fiscal year cycle which runs from July 1st to June 30th annually. This is important to note as years listed above do not represent a calendar year and each fire season typically falls in two fiscal years (e.g., fiscal year 2016 represents the bulk of expenses related to the 2015 fire season).

FISCAL YEAR 2019
$114.3 MILLION SPENT

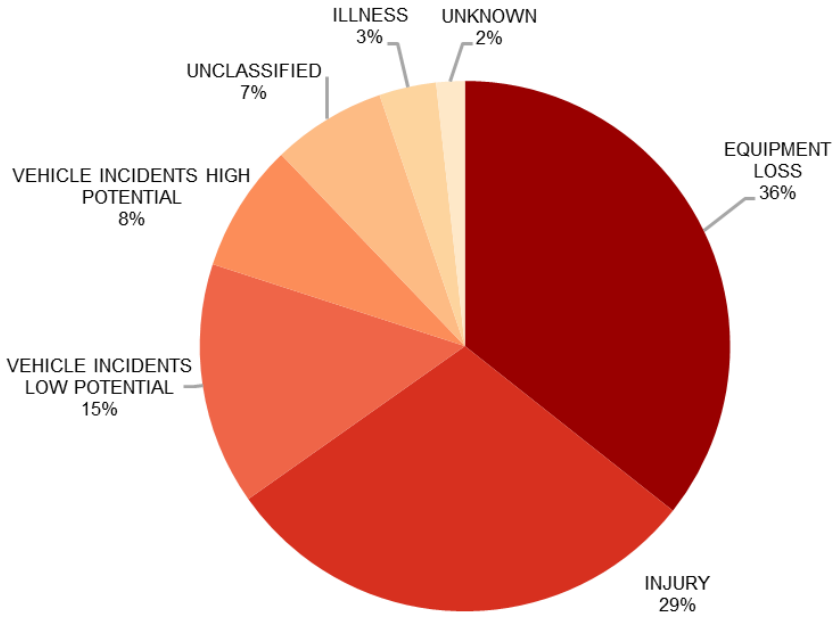
The total allotment for fire suppression from General Fund—State in 2019 was $16.6 million. Supplemental funds from General Fund—State were $12.5 million. Suppression expenditures increased to $114.3 million during fiscal year 2019, up from $95.5 million in 2018. Additional expenditures over the General Fund —State allotment and supplemental request were paid for through Budget Stabilization ($42.3 million), General Fund—Federal ($14.2 million), Clark McNary ($15.5 million), Landowner Contingency ($6.6 million), Disaster Relief ($5.4 million) and General Fund—Local ($0.98 million) accounts.

Suppression expenses during 2019 were the second highest over the most recent 10-years. These suppression expenditures supported the agency's fire readiness, including personnel, equipment, facilities, fire engines, and agency and contracted aircraft.

SAFETY STATISTICS

In 2019, 46.5% of the 230 reported safety incidents occurred during fire response activities. The decrease from 301 incidents in 2018 is a testament to lower fire activity this season. DNR's safety program staff worked 163 days supporting the fire program via worksite visits, fire safety trainings, and other intra– and interagency activities. This includes regional fire refreshers, incident management team training, fire academies, and serving on the Spring Coulee Fire Lessons Learned Team.

2019 INCIDENT REPORTS



INCIDENTS BY WORK ACTIVITY

FIRE RESPONSE	46.5%
OFF-FIRE	53.5%

MEDICAL ATTENTION SOUGHT

INJURIES	73.5%
ILLNESSES	62.5%

TOTAL INCIDENT REPORTS

2019	230
2018	301

Photo courtesy of Kari Greer, U.S. Forest Service

COORDINATION

The DNR Coordination Center (Center) provides direct dispatch support for three Northwest Type 2 incident management teams. In addition, the Center acts as the primary facilitator for DNR regions needing initial and extended attack resources beyond their local capability and coordinates the agency's all-hazards response efforts for natural and manmade disasters such as the Oso Landslide of 2014.

In 2019, the Center also extended its services to our partners in Oregon and Alaska who experienced more severe fire activity. The Center dispatched four Type 2 teams to Alaska (Oregon Lakes, Swan Lake, Montana Creek, and Deshka Landing) starting on May 11th and continuing through September 11th. In addition to team assignments, the Center worked with DNR's westside regions to create and dispatch four crews to support these efforts.

Further, the Center filled 65 single resource orders for out of state incidents:

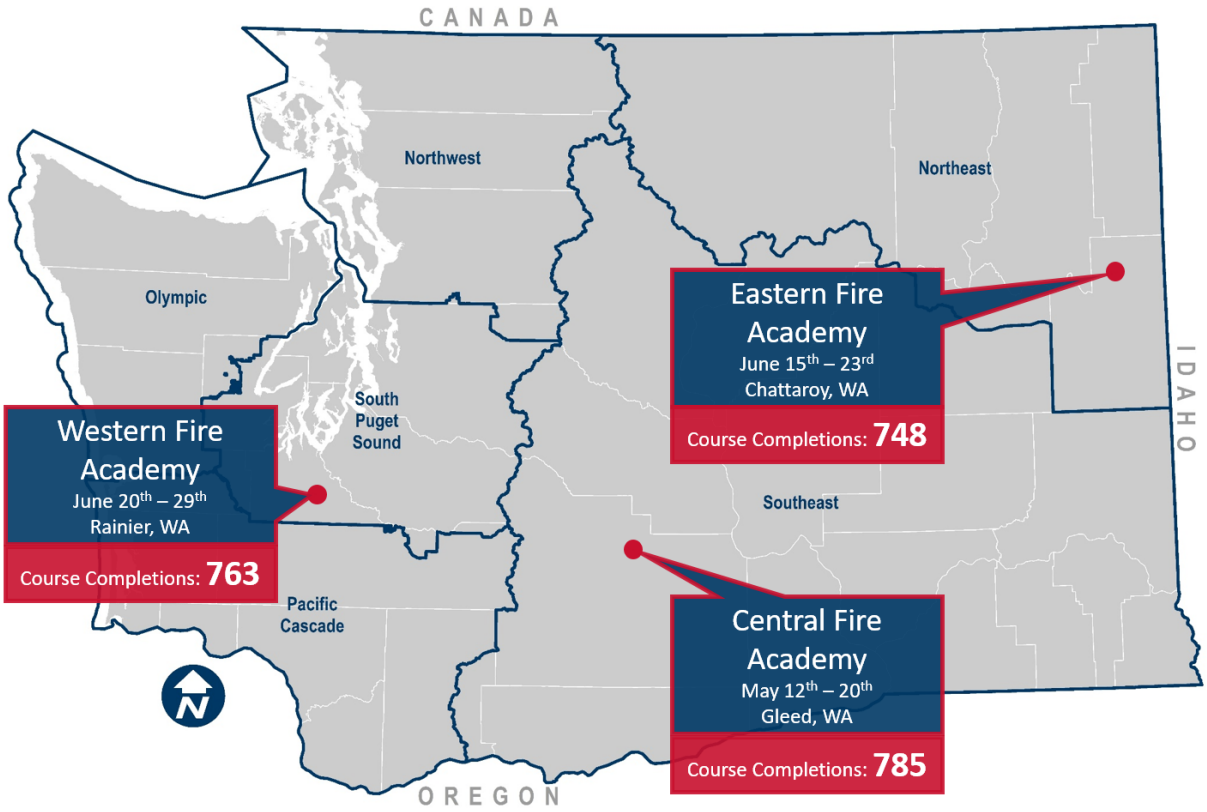
- Alaska: 30
- Oregon: 26
- Nevada: 4
- California: 2
- Idaho: 1
- Arizona: 1

A DNR hand crew dispatched to the Montana Creek fire in Alaska, July 2019

Type 2 Crew	Assignments	Out of State Assignments
Ahtanum	17	AK, WY
North Columbia	4	CA
Highlands	21	AK, CA, CO
* Mt. Adams	1	AK
* Puget Sound	1 + misc. AK fires	AK
* Rainier	1	AK
* St. Helens	Misc. OR fires	OR
* NEWICC Interagency	Misc. OR fires	OR

* Ad-hoc hand crew created to supplement resources in AK and OR

TRAINING



TRAINING ACADEMIES

In 2019, the DNR training program facilitated three interagency training academies across Washington. Students from 18 different agencies completed 2,296 courses during 25 days of instruction. DNR permanent and seasonal staff made up 53% of the total course completions, while local and rural fire district personnel were 21%, the U.S. Forest Service was 10%, and the Washington National Guard was another 10%. There were 692 course completions of introductory courses relating to basic firefighting skills (S-130, L-180, and S-190). A total of 51% of courses completed were for developmental type trainings like Fireline Leadership, Portable Pumps and Water Use, and Wildland Fire Chain Saws necessary to meet higher qualifications in fire operations.

RED CARDS ISSUED

The total number of red cards (fireline qualifications) issued in 2019 was 5,890. Local and rural fire district staff made up 67% of cards issued.

788	585	3,919	598
DNR PERMANENT STAFF	DNR SEASONAL STAFF	WA FIRE SERVICE	OTHER AGENCY

TRAINING

ADDITIONAL COURSES

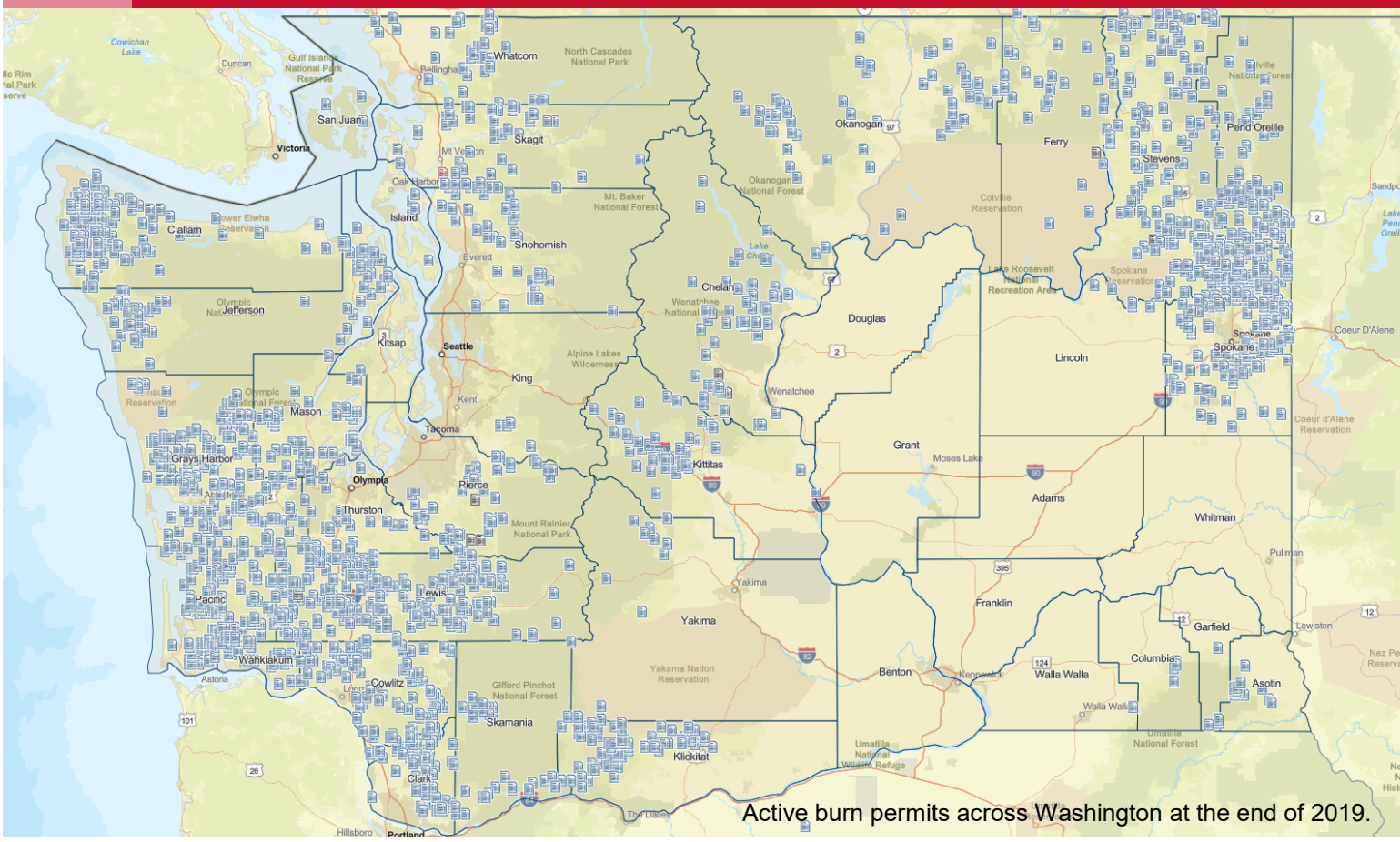
Beyond annual fire academies, the DNR training program provides ad-hoc training to DNR staff, fire districts, and federal land agencies. In 2019, DNR provided 28 different courses in topics like fire investigations, engine driving, physical fitness testing, safety refreshers, fire behavior calculations, and incident leadership resulting in 3,855 course completions. Of these, 84% were DNR staff, 10% other staff, 4% were fire district personnel, and 2% were federal.

NATIONAL GUARD

DNR remains committed to building and improving partnerships with the Washington State National Guard. National Guard resources are deployed during Governor declared State of Emergency situations like the catastrophic fires in 2015. In 2019, DNR provided five annual firefighter safety refreshers and three academy trainings for National Guard service members resulting in 270 qualified Firefighter Type 2's available for emergency deployment.

DNR and National Guard staff participate in joint training at the Yakima Training Center

SMOKE MANAGEMENT STATISTICS



Active burn permits across Washington at the end of 2019.

SUMMARY

To reduce the occurrence of human-caused wildfires, DNR regulates outdoor burning through the use of burn restrictions and burn permits for all silvicultural burners. When burners request to burn over 100 tons of forest material on their permits, our agency smoke management program must authorize the burn prior to ignition to prevent nuisance smoke and impacts to human health and activities. In 2019, 1,420 burn permits were issued that resulted in 1,211 smoke management decisions. Of these decisions, 996 were approved to burn, while 215 were denied, most commonly due to poor ventilation of the airshed.

Although the vast majority of burn decisions made by the program result in successful outdoor burning activities, occasional changes in weather and the complex terrain where most burns occur may result in smoke intrusions to local population centers. In 2019, two intrusions occurred: one in the Methow Valley on November 18th and one in Chelan on April 17th.

PERMITS ISSUED

1,420

REQUESTS TO BURN OVER 100 TONS

1,211

APPROVAL TO BURN RATE

82.2%

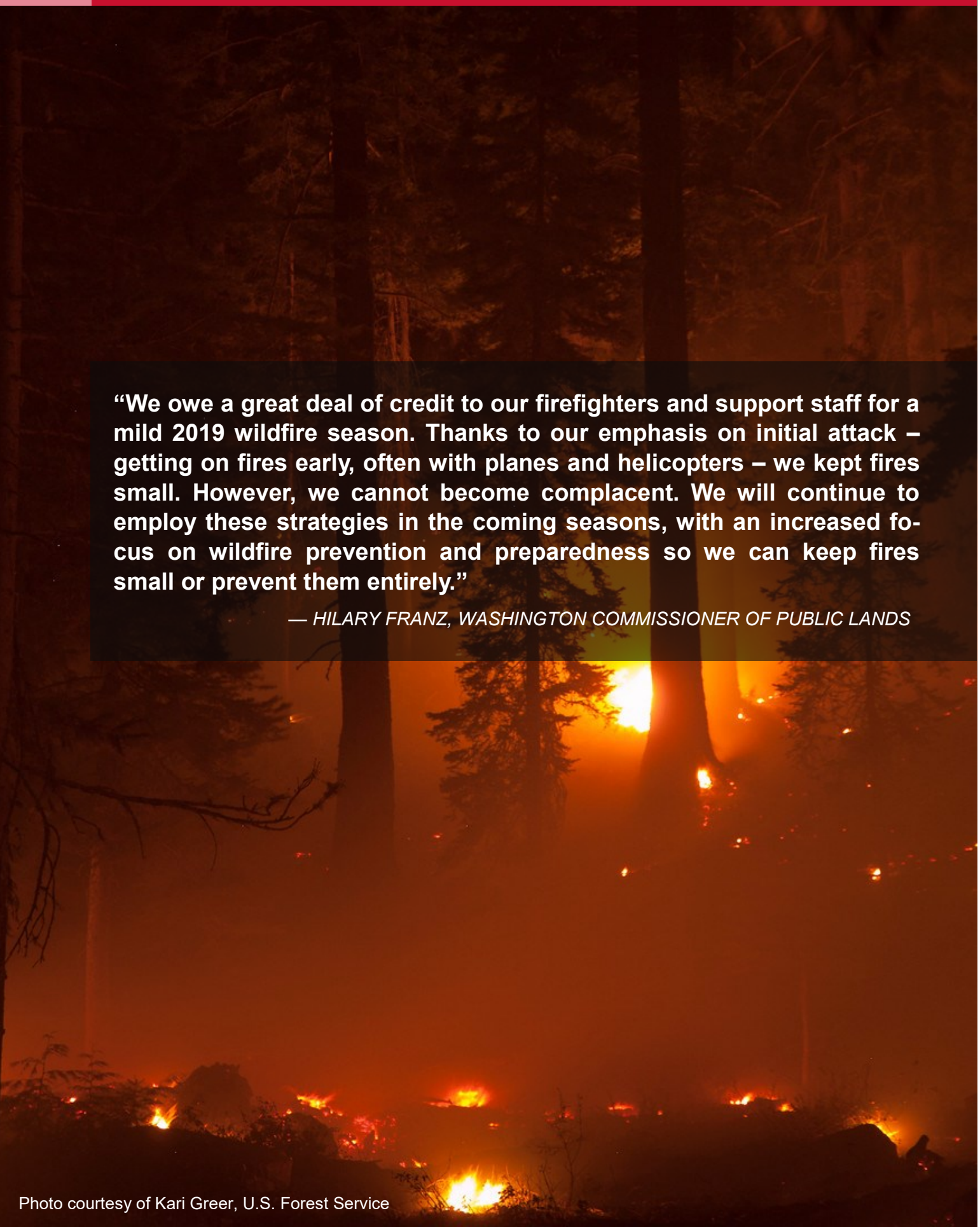
TOTAL TONS BURNED

203,856

FEDERAL ACRES BURNED

12,234

MAJOR ACCOMPLISHMENTS OF 2019

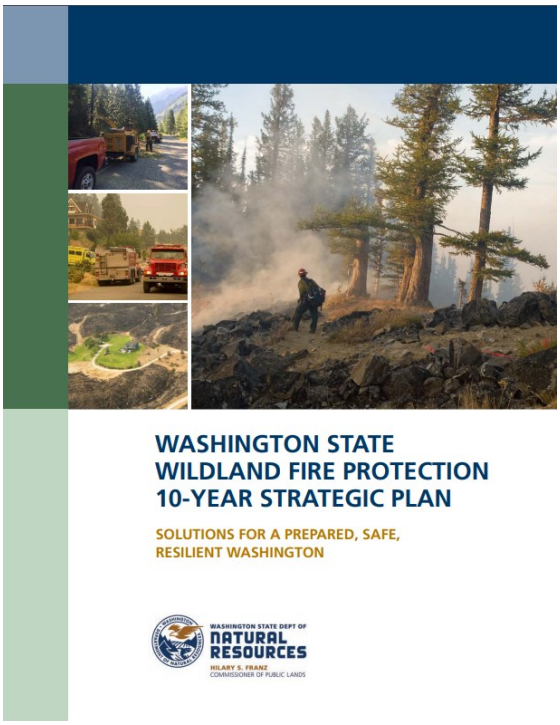


"We owe a great deal of credit to our firefighters and support staff for a mild 2019 wildfire season. Thanks to our emphasis on initial attack – getting on fires early, often with planes and helicopters – we kept fires small. However, we cannot become complacent. We will continue to employ these strategies in the coming seasons, with an increased focus on wildfire prevention and preparedness so we can keep fires small or prevent them entirely."

— HILARY FRANZ, WASHINGTON COMMISSIONER OF PUBLIC LANDS

Photo courtesy of Kari Greer, U.S. Forest Service

THE 10-YEAR WILDFIRE STRATEGIC PLAN



Washington's record fire seasons in 2014 and 2015 were devastating: the loss of life, homes, and structures; damage to fish and wildlife habitat and other natural and cultural resources; local communities suffering from a loss of visitors and revenue, and poor air quality. The state spent millions of dollars in direct suppression costs, and millions more were spent mitigating the social, cultural, and economic impacts from these fires. These seasons represent a trend of large, uncharacteristic wildfires that is expected to continue with no end in sight.

In 2019, DNR released the 10-Year Wildland Fire Protection Strategic Plan to provide a blueprint for effective wildland fire protection in Washington and inform associated policy and resource decisions. Working with our local, state, federal, tribal, private, and industry partners, we developed short-term and long-term objectives for addressing the wildland fire issues our state faces. Fundamentally, the plan involves moving from a reactive to proactive approach in dealing with fire - from a primary focus on suppression and response to an emphasis on investing in prevention, resilient landscapes, and fire-adapted communities.

FIRE DISTRICT SUPPORT

DNR's fire district assistance programs provide local and rural fire districts with opportunities to establish, develop, improve, and maintain their wildland firefighting capabilities.

Using funding provided by U.S. Forest Service, we administer the Volunteer Fire Assistance (VFA) Program, which provides grants and wildfire training opportunities to fire districts and departments in Washington. In 2019, the VFA Program awarded **$256,898** to 133 districts across Washington to acquire safety equipment through the DNR Fire Cache at half the normal cost. Grant funding is used to reimburse DNR for the other 50%. Additionally, **$347,521** was awarded to 42 fire districts for a variety of projects such as refurbishing and equipping vehicles for firefighting, purchasing radios, and replacing equipment. Districts match the grant funding dollar for dollar.

Franklin Co. FD #1 Type 6 engine converted from former DNR engine.

Under the Firefighter Property and Federal Excess Personal Property programs, DNR helps local fire districts obtain Department of Defense (DoD) and other federal agency equipment suitable for low-cost conversion to support firefighting and emergency services. In 2019, **14** vehicles were procured from the DoD for conversion into fire engines and water tenders while another **22** specialty resources such as dozers, command trailers, generators, etc. were also procured. The cost of these acquisitions was $2.5 million. Another two engines were sources from the U.S. Forest Service for $0.28 million.

The program also provides surplus DNR engines to fire districts when they are replaced within the agency's fire program. In 2019, the agency transferred **17** DNR engines to local fire districts (eleven Type 6 and six Type 5). Districts that receive these resources have one year to place them into service.

DoD M-1079 before and after conversion to a Type 4 engine for Snohomish Co. FD #22.

FIRE DISTRICT SUPPORT

Clockwise from top left: A UTV secured under the FEP program. A pump package provided to Grays Harbor FD #14. A DNR Type 4 engine available for procurement by local fire districts.

BOOSTING CORRECTIONAL CREW CAPACITY

DNR partners with the Department of Corrections to maintain a Correctional Camps program (**Chapter 220, SHB 242**) that provides job training to incarcerated individuals while meeting DNR's need for additional firefighting resources. These individuals are generally non-violent offenders with less than four years remaining on their sentence, and are assigned to work crews on a voluntary basis. For their service, they receive a modest gratuity and invaluable job training that can be used to qualify for DNR's regular firefighting positions after their sentence is completed.

In 2019, the DNR requested an additional $4.8 million related to wildfire activity and forest health initiatives. These funds were provided by the legislature and have already been used to:

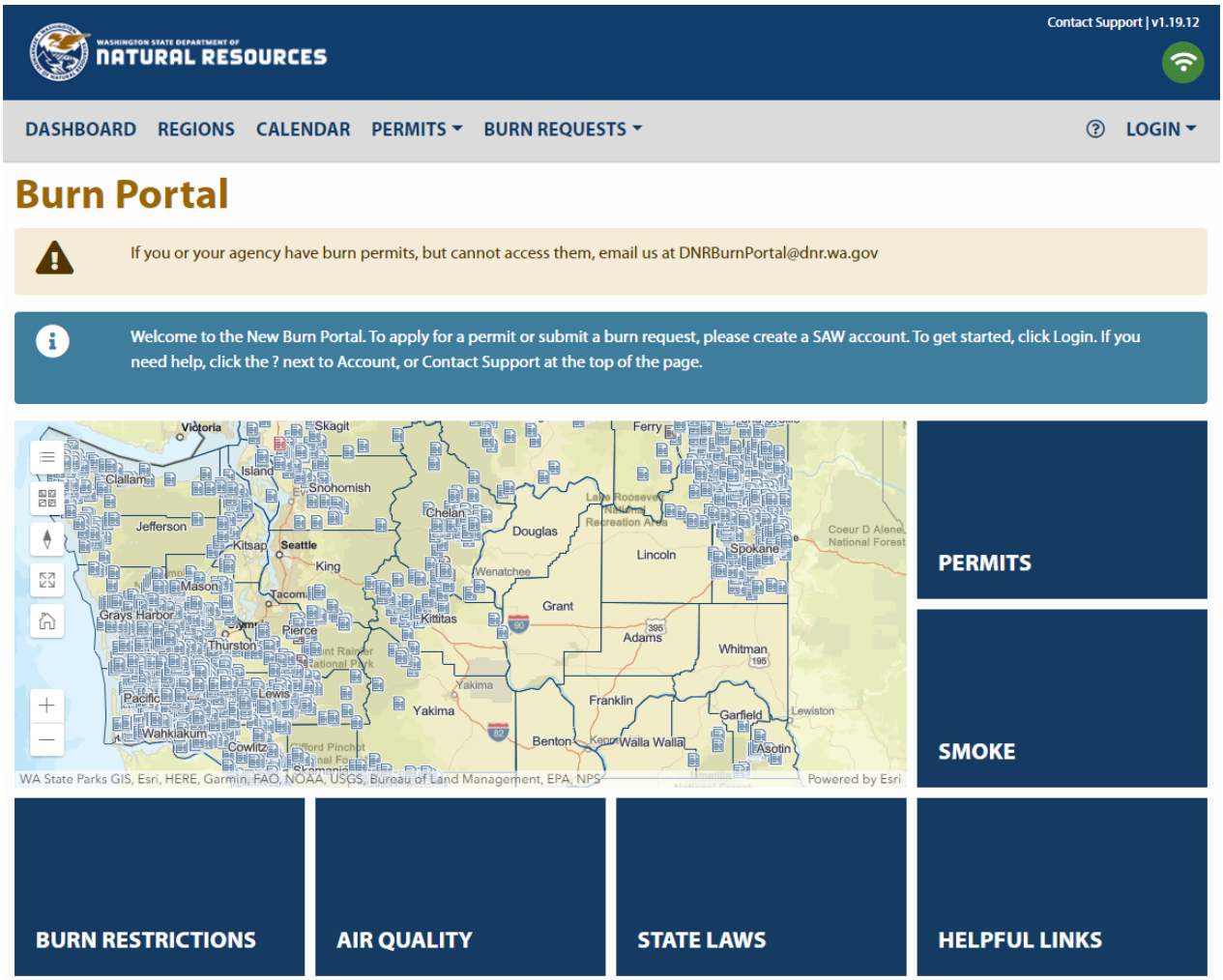
- Add an additional two crews (20 inmates total) at each of the four correction camps that provide work crews
- Add a camp manager and assistant camp manager position at the Airway Heights Correctional Camp
- Purchase eight new crew buses for each of the new crews

Funding was secured to replace six of the older crew buses in the fleet, replace the agency's oldest fire camp kitchen, and purchase two more kitchen support trailers.

DEVELOPMENT OF A NEW STATEWIDE SMOKE MANAGEMENT SYSTEM

After nearly two years of development, the new DNR Burn Portal was launched on December 3rd, 2019. This system replaces the previous SMOKEM system and provides modern functionality such as an electronic process to apply for, pay, and issue burn permits, as well as a documentation system for preserving the results of these activities. The new Burn Portal is the first agency application to allow electronic payments and electronic signatures, paving the way for the modernization of DNR's web applications.

The new Burn Portal can be found at **https://burnportal.dnr.wa.gov/**



Burn Request ID	Post-Burn	Permit Number	Landowner	Agent	Unit Name	Request Date	Multi Day Burn	Status	Ignition Date
13481	Enter	SP20200003		Nicolas Miller	TA 13 Piles	Jan 15, 2020		Approved Jan 16, 2020	Jan 16, 2020 10:00:00
13482	Enter	SP20200003		Nicolas Miller	TA 13 Piles	Jan 16, 2020		Approved Jan 17, 2020	Jan 17, 2020 10:00:00
13476	View	FW20199120	Ken Meinhart		Howellia	Jan 07, 2020		Approved Jan 08, 2020	Jan 08, 2020 09:00:00

The new DNR Burn Portal interface and example output

PROGRESS ON THE NEW STATE SMOKE MANAGEMENT PLAN

After two years of conversations with the people who manage our forests, harvest our timber, and protect our air quality, DNR has refined our approach to managing smoke from silvicultural burning. The 2019 Silvicultural Smoke Management Plan strikes a balance between the need for silvicultural burning, and the necessity of protecting vulnerable people from smoke impacts.

Photo courtesy of Kari Greer, U.S. Forest Service

DNR is tasked with carefully analyzing weather patterns, fuel moistures and types, and burn sizes before giving burners permission to ignite their projects on a day-to-day basis. We do this using the policies laid out in our Plan.

DNR has made three substantive changes to the plan:

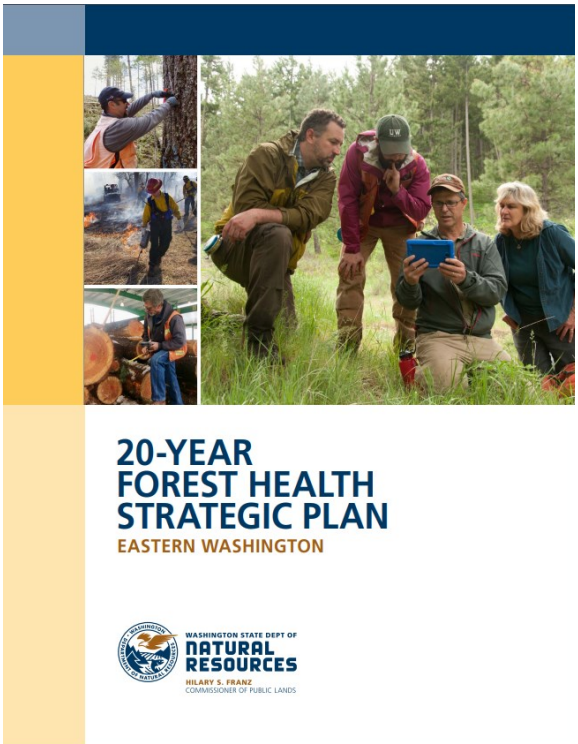
- **We will approve or deny burns the day before ignition,** rather than the day of ignition. In the past 20 years, since the last update of the Plan, our ability to model where smoke will go under specific conditions has become much more robust, and our weather forecasts have grown much more reliable. With more notice, burners will have more time to plan and deploy resources.
- **We will align our approval criteria with the force of law,** by holding burns to an approval standard in the National Ambient Air Quality Standards rather than approving or denying burns based on the likelihood of an intrusion. We will utilize all available air quality monitoring resources, and take timely action to mitigate smoke impacts, should they occur. We will take action at air pollution levels that are far below the federally enforceable threshold.
- **We will allow burning on summer weekends**, rather than prohibiting all weekend burning from June 15 to October 1. We will allow some burns to go forward, if they have met the approval criteria in the Plan. Often, the summer months are a better time to burn, since fuels are drier, thus burn more cleanly, and weather conditions move smoke up and out before it can settle. Of course, fire danger burn bans at the state, regional, and federal level will supersede any other determination.

DNR has finished our internal State Environmental Policy Act (SEPA) process on the changes to the Plan. In 2020, the Washington State Department of Ecology (Ecology) will work with DNR and other stakeholders to ensure that changes to the Plan will not cause state or federal air quality standards to be exceeded. Then, the Environmental Protection Agency will analyze the plan, and go through a public comment period. After that is completed, the updated Plan will be adopted into the State Implementation Plan (SIP) of the federal Clean Air Act, and it will carry the force of federal law.

CREATION OF THE FOREST HEALTH DIVISION

In 2019, DNR created the Forest Health and Resiliency Division in recognition that a reorganization of DNR's structure was necessary to achieve the agency's forest health goals. The forest health section of the Wildfire Program was migrated to this new division which now is comprised of four sections:

- Planning, Science and Monitoring
- Landowner and Community Assistance
- Federal Lands Program
- Prescribed Fire Program



This new Division is comprised of both new and existing DNR programs focused on:

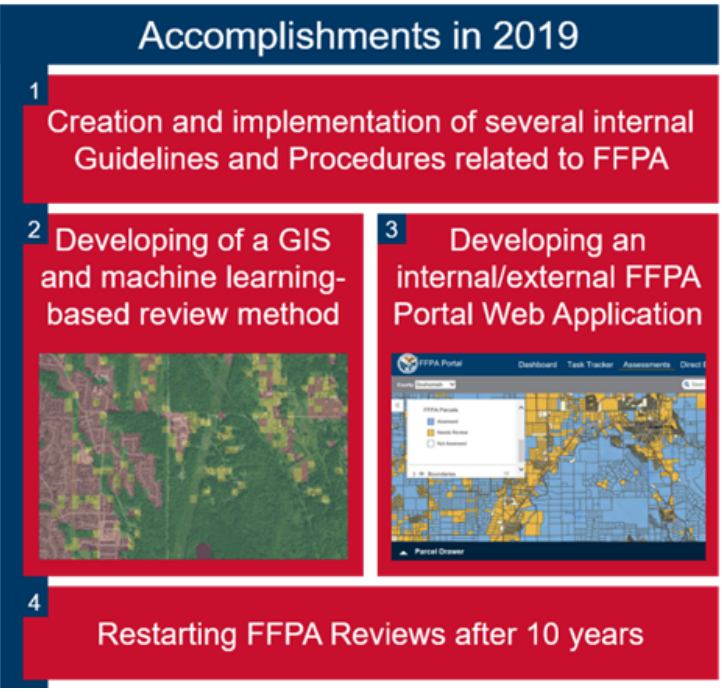
- Forest health insect and disease monitoring
- Landowner assistance and wildfire preparedness
- Urban forestry
- Forest stewardship
- **Prescribed fire (NEW)**
- **Federal lands restoration work (NEW)**
- **Forest planning and landscape ecology (NEW)**

Forest Health and Resiliency Division staff work to support the **20-Year Forest Health Strategic Plan** for eastern Washington, while developing a revised Forest Action Plan for the State's 22 million acres of forest to integrate all the existing strategies and shared stewardship currently ongoing. Staff work closely with federal and other partners to provide technical assistance about tree and forest health care to all types of public and private landowners.

FOREST FIRE PROTECTION ASSESSMENT PROGRAM UPDATES

Forest Fire Protection Assessment (FFPA) is a fee that is paid by private landowners and exempt entities (counties, cities, non-profits, and state landowners) to help pay for the cost of preparing to fight wildfires (RCW 76.04.610). Any landowner who pays FFPA also pays a Landowner Contingency Assessment (LOC). LOC covers costs related to emergency fire suppression when a FFPA/LOC landowner starts a fire during a forestry-related operations.

The FFPA program had many accomplishments in 2019 including the establishment and implementation of internal agency guidelines and procedures, the development of a GIS and machine learning process to aid in the restart of FFPA parcel reviews, and built a web application to review, track and report assessment information on county-based parcel data.



Finalized Internal Guidance for FFPA

The FFPA committee, which included staff from each of our six DNR regions, drafted internal guidance for the FFPA program in 2018. These documents were finalized and implemented agency wide earlier in 2019. Approved materials include:

- **Guidelines for individual parcel reviews** which provide best practices and aim to consistently identify parcels that pay the assessment.
- **Procedure for Forest Fire Protection Assessments** which clarifies how the Wildfire Division, DNR Region staff and county staff coordinate to review and apply assessments accurately.
- **Procedure for establishing Forest Protection Zones** which provides guidance on how we identify and exclude geographic areas from DNR protection. These zoned-out areas are then solely protected by local fire authorities.

Restarting County Parcel Reviews

Reviewing parcels on a statewide scale is a complex task, a complete review of the nearly 3 million parcels in Washington to determine which landowners pay FFPA has not been completed since 2009. Now that DNR has a new guidance and procedures for FFPA reviews, a goal of the program in 2019 was to start reviewing county parcels again.

FOREST FIRE PROTECTION ASSESSMENT PROGRAM UPDATES

Using the newly drafted guidance and procedures for FFFA reviews as a foundation, agency staff worked hard to develop two (east/west) machine learning-based image classification computer models trained off of approximately 12,000 aerial image samples from across the state. The three classes of FFPA used by the model are 'assess', 'not assess', and 'review needed'. The training process for the model resulted in a **prediction accuracy of ~90%.**

This model was then used to predict whether or not an area should pay the assessment. That resulting prediction is fused with land cover data and informed by other GIS-based political boundaries to determine the final assessment status. The model and assessment logic we used was very conservative and it only made decisions on the obvious 'assess' or 'not assess' parcels.

For example, if the imagery depicts a forest it is 'assessed', if it is a neighborhood it is 'not assessed', and anything that the model is unsure about is tagged as 'review needed' and reviewed by DNR Staff.

This process has drastically cut the amount of time it takes to perform FFPA reviews and has been instrumental in helping us to complete initial parcel reviews in five counties (Snohomish, Pacific, Lincoln, Chelan, Spokane and Island) in 2019. As we complete FFPA reviews, we continue to adjust our process to ensure we are consistently reviewing and applying the assessment. Continued utilization of this improved process will help us complete initial reviews in the remaining 29 counties in 2020.

New FFPA Portal Web Application

In tandem with beginning the new parcel review process, we developed a web portal to review, track, and report on FFPA. This new portal communicates FFPA information with county assessor staff and landowners. Additionally, the portal provides a central location for assessment refunds and multi-parcel exemption applications. Access to this application is available for authorized users through the links below:

- Internal Staff: **https://protection/ffpa**
- County Staff: **https://secureaccess.wa.gov/** (Available through Secure Access Washington)

WASHINGTON DEPARTMENT OF NATURAL RESOURCES