

# Wildfire Season 2022

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Washington Department of Natural Resources  
Wildland Fire Management Division

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Prepared by  
Washington State Department of Natural Resources  
Wildland Fire Management Division  
December 1, 2022



WASHINGTON STATE DEPARTMENT OF  
**NATURAL RESOURCES**

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***Please note that these statistics are derived from regional input of data into the Fire Incident Reporting System, an internal DNR system. Statistics may vary throughout the season until finalized at the end of the calendar year. Additionally, data cleaning may modify these statistics as we work towards more comprehensive and accurate data management. Statistics presented here are the most up-to-date and accurate information provided through Sept. 30, 2022. The large fires described in this report are those fires that started on DNR protection, or are otherwise considered DNR fires. This report does not include details or statistics for other agency fires, except in those instances where DNR was directly involved in supporting those fires.***

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# Executive Summary

## **Introduction:**

Preparedness for the 2022 Fire Year was dominated by normal fire season preparations, with the additional complexity of HB 1168 implementation. Fortunately, a delayed start to the fire season allowed extra time for hiring, training and putting new equipment in service. Supply chain disruptions and labor force constraints have been ongoing challenges throughout the 2022 Wildland Fire Year.

Despite starting late, the 2022 season has been defined by significant fire weather events. While DNR experienced a high success rate in initial attack (88.6% of all DNR fires were held at 10 acres or less for the first three quarters of the fire year, which ends December 31, 2022), multiple dry lightning events and east wind periods established large fires in Washington. Extended drying facilitated large fire development in western Washington, in addition to the typical large incident load in eastern Washington. Late season east winds pushed fire season far past the usual “end of season” fall rain onset.

There was strong synergy between DNR Wildland Fire Management programs, DNR Regions and agency partners. As of this writing 662 fires have burned 55,611 acres on DNR jurisdiction, which is well below the 10-year average of 904 fires for 204,589 acres.

## **Highlights you will see in this report:**

- Fire Season Summary describing key events and actions throughout the 2022 Wildland Fire Year.
- Fuels, Weather and Fire Danger, with an analysis of factors that drove fire activity in 2022.
- Statistical overview, including Large Fire data and Ownership Acres burned and Forested vs. non-Forested acres.
- The DNR Aviation Program report, including fire response statistics, with additional specific detail on HB 1168 acquisitions and activities.
- Year-to-Date Financial detail from 2022 incidents.
- A map of large fires referenced in this report.

The most important objective throughout the 2022 Fire Year has been firefighter and public safety. There were no reported civilian injuries or fatalities associated with DNR incidents. Minimizing the public health impacts of wildfire smoke is an ongoing challenge for fire managers. The adverse effects of smoke were constantly factored into the development of incident strategies, consistent with firefighter safety. Over 60 DNR incident/injury reports resulted in just one serious firefighter injury, which was associated with a UTV rollover. There were two “hull-loss” firefighting aircraft crashes on non-DNR missions in 2022. There were no firefighter fatalities in the State of Washington during the year.

# Fire Season Overview

The 2022 fire season started off in Washington with moderated conditions, due to a very wet spring statewide. This allowed for the opportunity of continued onboarding of new staff and implementation of preparedness activities, as well as the ability to support many Southwest States and Alaska. DNR dispatched a total of 830 fire personnel, including PNW Type 1 Incident Management Team 2 to New Mexico and NW Type 2 Incident Management Teams 7, 9, 10, and one Northeast Type 3 Incident Management Team to Alaska.

STATE	DNR	FIRE SERVICE
ALASKA	108	31
ARIZONA	3	10
CALIFORNIA	17	0
COLORADO	1	1
IDAHO	4	6
MONTANA	21	0
NEVADA	0	1
NEW MEXICO	217	48
OREGON	153	132
TENNESSEE	1	0
TEXAS	75	1
<b>TOTAL PERSONNEL</b>	<b>600</b>	<b>230</b>

*Table 1: DNR and Washington Fire Service (WFS) resources dispatched out of state (includes large fire management personnel and single resources).*

Rain during the spring season translated to an overwhelming grass fuel loading in the rangelands in Eastern Washington. As conditions turned hot and dry in July, the fine fuels eventually dried out and posed a volatile fire threat. The first large DNR Fire of the year was the Stayman Flats Fire, which started July 18, just outside of Chelan. This burned nearly 1,100 acres of grass, sagebrush, and some timber. Following the Stayman Flats Fire, activity ramped up throughout the state. The Vantage Highway and Cow Canyon fires occurred in the first week of August, just outside of Ellensburg, and were both managed by one Type 2 Incident Management Team. During the same day Cow Canyon Fire started, the Williams Lake Fire started and grew to nearly 2000 acres just south of Cheney. This was the first big resource commitment for Washington in 2022, which elevated the state’s preparedness level to PL3 (an indicator of interagency resource commitment to ongoing fires and a trigger for additional fire management actions).



*Photo 1: Vantage Highway Fire with typical rangeland fuel loading of heavy grasses and 3- to 5-foot tall sagebrush.*



*Photo 2: Sevens Bay Fire near Lake Roosevelt National Recreation Area.*

August had continued warming and drying conditions statewide, which translated to ongoing fire activity. An especially high amount of initial attack continued in DNR's Northeast Region where wildland urban interface, rangelands and forestlands meet.

There were several thunderstorm events that passed through Washington in August. Several large fires started as a result of these storms both in Western and Eastern Washington. Several Type 3 IMTs were mobilized to fires, one National Incident Management Organization (NIMO) was assigned to the fires in the North Cascades National Park, and one NW Type 2 Team was assigned to the Goat Rocks Fire in the Gifford Pinchot National Forest.

The Boulder Mountain Fire also started from lightning on August 31. This fire burned a combination of national forest lands and private forest lands just east of Cusick, situated between Pend Oreille and Stevens counties in northeast Washington. This fire was managed by two separate Type 2 IMTs over the following month.



*Photo 3: Bolt Creek Fire as seen from Highway 2 near Skykomish.*

During the second week of September, an east wind event occurred on the west side of the Cascade Range. This extremely warm and dry air fanned ongoing Cascade mountain fires and pushed a lot of smoke into the Puget Sound lowlands, ultimately deteriorating air quality into mid-October. During this east wind event, the Bolt Creek Fire occurred. The Bolt Creek Fire burned more than 12,000 acres of Western Washington forestland between Skykomish and Index. This fire forced the closure of Highway 2 off and

on for more than a month due to immediate fire impacts and risks to public safety. It also prompted the evacuations of more 400 homes, most of which were primary residences. A Type 2 IMT assumed command of this fire days after its start. While a 12,000-acre fire in Western Washington is not unheard

of historically, it should be a reminder for the potential that exists in Western Washington communities especially in periods of dry easterly winds.

September and October conditions remained unusually dry across the state. Much ongoing firefighting occurred and new initial attack fires were combated effectively. Throughout the season, rapid detection and effective interagency response led to timely control of most fires. DNR owned/operated and contracted firefighting aircraft proved to be effective in minimizing acres burned and resources lost as well. During the height of the fire season, DNR had exclusive use contracts with one fixed-wing reconnaissance aircraft, three fixed-wing air attack platforms, two CL215 scoopers, five single-engine air tankers, two large air tankers, and four heavy helicopters. This was in addition to other Call When Needed (CWN) helicopter support.

DNR capitalized on the ability to have out-of-state resources dispatched into Washington throughout the season. This was effective in filling some of the ongoing staffing gaps throughout the program, especially during periods of high fire activity.

2022 Out of State Imported Resources								
Resource Type	Engines	Engine Bosses	Hand Crew Module	Helicopter Managers	Safety Officers	Statewide Support	Total	
State	Alaska	0	2	0	4	0	0	6
	Florida	0	0	0	0	0	1	1
	Georgia	0	0	0	0	1	0	1
	Kentucky	0	1	0	0	0	0	1
	Maine	1	0	0	0	0	1	2
	Minnesota	0	0	0	1	0	1	2
	New Mexico	13	0	1	0	0	0	14
	North Carolina	0	0	0	1	0	4	5
	Oregon	0	0	0	2	1	0	3
	Utah	0	0	0	1	0	0	1
	Saskatchewan	0	0	0	0	1	0	1
	Yukon	0	0	0	0	1	0	1
<b>Total</b>	<b>14</b>	<b>3</b>	<b>1</b>	<b>9</b>	<b>4</b>	<b>7</b>	<b>38</b>	

Table 2: 2022 Out of State (and country) Imported Resources.

The DNR Logistics section supported numerous type 3 and 2 incidents throughout Washington with Fire Cache inventory and incarcerated camp crews. Specifically, these supplies, rolling stock, and crews were critical in allowing for interagency incidents to effectively support and achieve their logistical support objectives. Another key success achieved was the formation of the post-release incarcerated hand crew, known as Arcadia 20, and their response on numerous fires in DNR’s Northeast Region

The DNR Planning and Information Section provided ongoing incident information and predictive services support through the fire season. The DNR Meteorologist provided timely fire weather support

during the entire season and the constant information flow regarding situational and fire intelligence services kept internal and external fire practitioners abreast of changing conditions. Academy and other training sessions were held in either a virtual instructor-led environment or hybrid environment, utilizing appropriate COVID protocol.

The DNR Community Resilience section made great progress in implementation of its new programs, including the hiring of six new community resilience coordinators. Additionally, it has expanded the Wildfire Ready Neighbors program in Eastern Washington to an all-year program encouraging homeowners to take action around their property to be ready for wildfire season. Wildfire Ready Neighbors program in spring, 2022 conducted three focused marketing surges in Spokane, Chelan and Yakima counties. In total 1,058 people signed up for the program across Washington, with 591 people requesting a home visit or forest health consultation in the three focus areas.

Wildfire Ready Neighbors is conducting three focused marketing surges in Klickitat, Kittitas and Okanogan Counties in autumn of 2022. The program in Eastern Washington has transitioned from a pilot program to a program that will be available to residences all year.

The COVID-19 pandemic continued to disrupt staffing on fire crews and in large fire management operations, however COVID illnesses seemed to be less severe than previous strains and led to shorter durations of isolation between sickness and returning to the workforce. Many of the same mitigation protocols were put into place on IMTs to control the spread of the disease at ongoing incidents. This proved to be effective as we continued to address the disease throughout the season.

Throughout the season, safety of firefighters remained at the top of operational objectives. There were over 60 injury/illness reports related to firefighting activities during the season within DNR, but only one significant injury related to a UTV rollover incident. Additionally, DNR management did initiate a Facilitated Learning Assessment (FLA) in result to a near-miss fire entrapment incident that occurred on the Vantage Highway Fire. This FLA is a testament of the proactive measures DNR takes to learn from actual incidents, with the goal that all firefighters can be better informed and prepared when they encounter challenging situations in the future.

The 2022 fire season was slow to start in the Pacific Northwest, but this gave Washington firefighters opportunities to help in other regions of the country. Conditions didn't reach critical levels in Washington until later in July, but dry weather did persist statewide through the months of September and October. DNR fire responses remained at a high statistical level. These fire statistics are attributable to increased interagency partnerships and a reflection of DNR's ability to respond to new initial attack fires when called upon. Western Washington was hit especially hard with several challenging late season fires that continued to burn late into October. Experience gained and lessons learned will advance the program into 2023 with even more vitality than previous years, especially with the ongoing implementation of House Bill 1168.

# Aviation

As noted above, aviation operations were an area of emphasis in 2022 due to the large fire potential across Washington and the need to expand the air asset coverage area, thus reducing response times to incidents. DNR responded more than 250 times via aircraft support to initial attack incidents. DNR committed to heavy aircraft utilization to decrease response times, minimize exposure of firefighters to COVID-19 and reduce the risk to communities by keeping fires small. Key actions included procurement of one K-Max helicopter and three UH-60 heavy helicopters on 89-day exclusive use contracts, two CL-415 large air tanker (scoopers) on a 89-day contracts, two large air tankers, and several other medium and light helicopters, and single engine air tankers. This was in addition to the aviation assets DNR manages. Ultimately, the K-Max and the UH-60s delivered 2,488 buckets/tanks of water totaling over 1.74 million gallons. The K-Max were the most cost-effective resource in terms of cost per gallon, delivered at \$0.67/gallon (see Table 7 for more details). The CL-415 scoopers by far delivered the most water (2,830,000 gallons) to fires.



*Photo 4: Helicopter H-342 delivers water to the B-8000 fire in Capitol Forest. Photo courtesy of Jason Hultman – Helicopter Manager.*

DNR ended the 2022 season with nine UH-1H helicopters, one B206L4 light helicopter, plus one helicopter leased from Chelan County Fire District 1. DNR-owned aircraft provided 1,600 aircraft days of coverage transporting aerial-delivered firefighters and more than 1,000,000 gallons of water to the incidents. Response time from alert to incident averaged 14 minutes.

With the agency increasing aircraft usage to respond to incidents, additional challenges (drought conditions, extreme temperatures, COVID-19) caused DNR to contract a third air attack aircraft. This provided for safe operation by having aerial supervision readily available, since having an air attack platform in place to act as an “eye in the sky” over any fire is required when flying multiple aircraft.



*Photo 5: Contract tanker 544 and scooper 260 get pre-inspected at start of season for contract service. Moses Lake. Photo courtesy of Dave Ritchie – Chief of Air Operations.*



DNR contracted with private vendors for five amphibious, single-engine air tankers. These aircraft delivered 1,720 loads totaling 1.13 million gallons. Their cost per gallon was \$1.58. Several other CWN aircraft from private contractors were brought on for specific incidents or weather events, including one UH-1, one B212 and one B407.

For the first time ever, DNR assisted in staffing the Moses Lake Air Tanker Base, which is a federal tanker base. This action allowed DNR and its personnel to deploy the portable air tanker base (PAB) procured under HB 1168 and greatly increased interagency partner cooperation.

During times of low activity, DNR assisted the State of Alaska and Alaska Bureau of Land Management with Aviation support to include two CL-415 scoopers, one Q-400 large air tanker, and four single engine air tanker fixed wing aircraft. Due to initial low activity and cooperation with state and federal partners this action saved the state more than \$3 million.

More than 300 structures were protected from fire by DNR Aviation at a value greater than \$120,000,000.

For a breakdown of aviation resources used this year, see Table 3.

### **HB 1168 progress**

DNR has procured two Daher Kodiak 100 light fixed-wing aircraft that are currently in modification for the 2023 fire season. These aircraft will dramatically increase DNR's ability to provide aerial supervision, detection, reconnaissance, mapping, and passenger movement during pre-suppression and suppression activities.

DNR has procured the trailer for the Portable Air Tanker Base (PAB) which will be operational for the 2023 fire season. With staffing at the Moses Lake Tanker Base during the 2022 fire season, DNR will have the personnel and equipment needed to rapidly deploy the Portable Air Tanker Base as needed.



*Photo 6: DNR Kodiak 100 N216KQ at the modification facility in Fargo, North Dakota. Photo courtesy of Noel Larson – Assistant Chief Pilot.*

The Aviation Section has hired two program specialists to lead the new teams and procurements required by HB 1168. In addition to the above, The Aviation Section plans to implement an unmanned aircraft systems (UAS) Drone program, night vision goggle capability for department helicopters, and additional staffing for the 2023 fire season.

DNR Helicopters											
Type	Contract Type	Total Incidents	Total Gallons	Cost Per Gallon	Non-Revenue Flight Time	Incident Flight Time	Structrues Protected	DNR Incidents	Federal & Other Incidents	AK Flight Time	AK Incidents
UH-1H	DNR	182	762,660	\$ 1.15	311.1	401.7	183	91	35	0	0
UH-1H-1MR	EU	27	99,840	\$ 1.49	9.5	68.5	7	9	5	0	0
Contract Helicopters											
Type	Contract Type	Total Incidents	Total Gallons	Cost Per Gallon	Non-Revenue Flight Time	Incident Flight Time	Structrues Protected	DNR Incidents	Federal & Other Incidents	AK Flight Time	AK Incidents
206L4	DNR	0	0	\$ -	42.4	0	0	0	0	0	0
212S	CWN	13	5,124	\$ 12.56	0	11.7	0	1	0	0	0
407	CWN	14	0	\$ -	0	8.8	0	1	0	0	0
KMAX	EU	33	435,820	\$ 0.67	5	114.2	0	4	5	0	0
UH-1H	CWN	7	39,528	\$ 1.43	0	16.6	0	1	0	0	0
UH-60	CWN	10	142,100	\$ 1.50	0	35.2	0	3	3	0	0
UH-60	EU	82	1,133,819	\$ 1.39	6.1	280.6	0	15	14	0	0
Fixed Wing											
Type	Contract Type	Total Incidents	Total Gallons	Cost Per Gallon	Non-Revenue Flight Time	Incident Flight Time	Structrues Protected	DNR Incidents	Federal & Other Incidents	AK Flight Time	AK Incidents
Air Attack	EU	65	0	\$ -	0	223.54	0	20	21	0	0
FireBoss	EU	194	1,118,241	\$ 1.58	4.87	490.28	0	17	15	249.89	2
Kodiak	CWN	5	0	\$ -	64.53	17.93	0	3	2	0	0
Q400	EU	68	326,328	\$ 4.56	0.7	148.86	0	12	10	23.87	5
Scooper	EU	182	2,828,420	\$ 2.79	0	486.61	0	11	9	233.02	16

Table 3: 2022 Aviation Use, by kind of aircraft and contract type.

## Fuels, Weather and Fire Danger Summary

The 2022 fire season began with an exceptionally wet spring, increasing the snowpack but also leading to expectations of tall, thick and abundant grass in the basins of Eastern Washington. The late spring delayed green-up, and with cooler than normal weather through most of June, the fire season was slow to initiate. By June, the continued wet weather of May had snow packs in some locations at over 300% of normal and drought conditions shrunk down by the middle of June to only areas of moderate drought or abnormally dry across the Columbia Basin. Drought status continued to shrink in extent and severity through August.

Fuels in June were well below average to begin the month, more similar to March conditions, with live fuel moistures still climbing towards peak green-up until about the second week of the month. Fire activity was very light with only two fires greater than 10 acres in the month, the 65-acre Egypt Loop fire in Lincoln County, and the 76-acre Johns River fire in Grays Harbor County. Both fires started during a short heat wave at the end of the month with offshore flow that brought dry air to western Washington with relative humidity (RH) values in the low 20s, and gusty winds east of the Cascade Range as the ridge broke down. This brought fuel conditions on the west side up the 98<sup>th</sup> percentile for Energy Release Component (ERC) in the Coast Fire Danger Rating Area (FDRA), and above the 90<sup>th</sup> percentile for most of the rest of the west side of the state.

July initially saw a return to cool and damp conditions and the drying out that occurred at the end of June was mostly gone bringing near normal fire danger to the Columbia Basin and eastern slopes of the

Cascade Range, while the eastern mountains still had abundant moisture to rebound. Following the first week of July the transition to summer conditions finally occurred and indices rose accordingly as the precipitation stopped. Fire ignitions increased though the vast majority of fires remained at less than an acre. The Stayman Flats fire on July 18 made up 1,200 of the 1,400 acres burned during that month. It burned on a southerly aspect in mostly grassy fuel types in Chelan County at very low elevation. Full curing of grasses in the basin had still not occurred yet, and live fuel moistures remained quite high. Another strong offshore pattern at the end of July brought temperatures into the triple digits in eastern Washington and sent RH values in western Washington again into the low 20s, and pushed all of the FDRAs except Kaniksu, and Lowlands South, well over the 90<sup>th</sup> percentile for ERC. Unlike the heat wave in June though, indices stayed high.

August entered on the heels of the extreme heat that pushed ERC indices into the 99<sup>th</sup> percentile for many portions of the state and set new all-time records in the Lower Basin FDRA. Unsurprisingly, the first rash of large fires established in and around the low elevation rangelands of the Columbia Basin as the Riparia Fire (Whitman County), Cow Canyon Fire (Yakima County), and Williams Lake Fire (Spokane County) started in the first week of the month. Exposed grass was clearly cured, and live fuel moistures in the basin brush were supporting high intensity fire activity but still required extreme fire weather to really push fire activity. For example, RH values in single digits with wind gusts upwards of 30 mph were present during the initial attack on the Williams Lake and Cow Canyon fires. Forested lands on either side of the state were still not supporting any significant fire activity until near the end of the month. Dry lightning started many of the fires in August, including several federal incidents like in the Northwest Pasayten Wilderness area (August 22), Chilliwack Complex in the North Cascades National Park (August 25), Suiattle River Fire on the Mt. Baker-Snoqualmie National Forest (August 25)), Boulder Mountain (DNR and Colville National Forest, August 31), Goat Rocks (on the Gifford-Pinchot National Forest, and others. Except for Boulder Mountain, none of the other large fires utilized a full suppression strategy nor did they make large runs in the first burn period. Growth occurred on many of these fires through spotting that occurred ahead of the fire front, and less in the way of surface spread.

September started with conditions mostly above normal except for the Kaniksu and Lowlands South FDRAs where high live fuel moistures remaining from the wet spring suppressed the fire danger in the northeast corner of the state, and consistent low marine influence in the Chehalis valley was keeping the Remote Area Weather Station (RAWS) stations in the area reporting a little damper than normal. Similar to Labor Day in 2020, early September featured a strong offshore event, bringing west side temperatures into the 90s and RH values as low as 11%. During this event, wind speeds also topped over 50 mph in some of the Cascade Range gaps, all of which led to reawakening fires in the Cascades from North to South. Explosive growth during the initial attack phase of the Bolt Creek fire, which started on September 10 was also newsworthy. Bolt Creek ran for more than 8 miles in the first burn period, exhibiting group torching and long range spotting ahead of the fire. Strong marine flow returned on September 11, and with the aid some exceptionally wet thunderstorms through September 16, put a swift halt on fire activity across the state, and other than a mild offshore push around the September 25 and 26, no other significant events occurred<sup>1</sup>. Apart from a few areas very near the coast, western Washington experienced the driest summer on record with less than 0.5 inches of rain falling at SeaTac between June 21 and September 21.

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<sup>1</sup> Due to the timing of this report, activity in October is not included. A supplemental statistics and financial report will reflect the activity for the last quarter of the fire year, and should be completed by mid-February. A fire of significance that took place in October, during the late warming trend and east wind event during that month, was Nakia Creek, which started on October 9, was human-caused, and burned 1,918 acres. Fall rains finally arrived in earnest on October 21, putting an end to fire season.

## A tale of two seasons

Washington's 2022 fire season began with the wettest April to June period on record and ended with the driest July to October on record. The two extremes yielded a late start and a late peak to fire season as record moisture through June led to an extended green up period and the lack of moisture through September precluded any season ending rainfall events on the numerous large fires in the Cascades. Overall, critical fire weather events were mainly driven by hot and unstable conditions in the Cascades associated with the persistent ridge over the state. Winds aloft (between 5-10kft) were weaker than normal this summer on account of the persistent ridge, and led to only a handful of critical wind events. Two moderate east wind events (one in September and one in October) were the most critical periods of fire weather for the state in 2022, and resulted in significant smoke impacts, rapid spread on existing fires, and the ignition of the Bolt Creek fire.

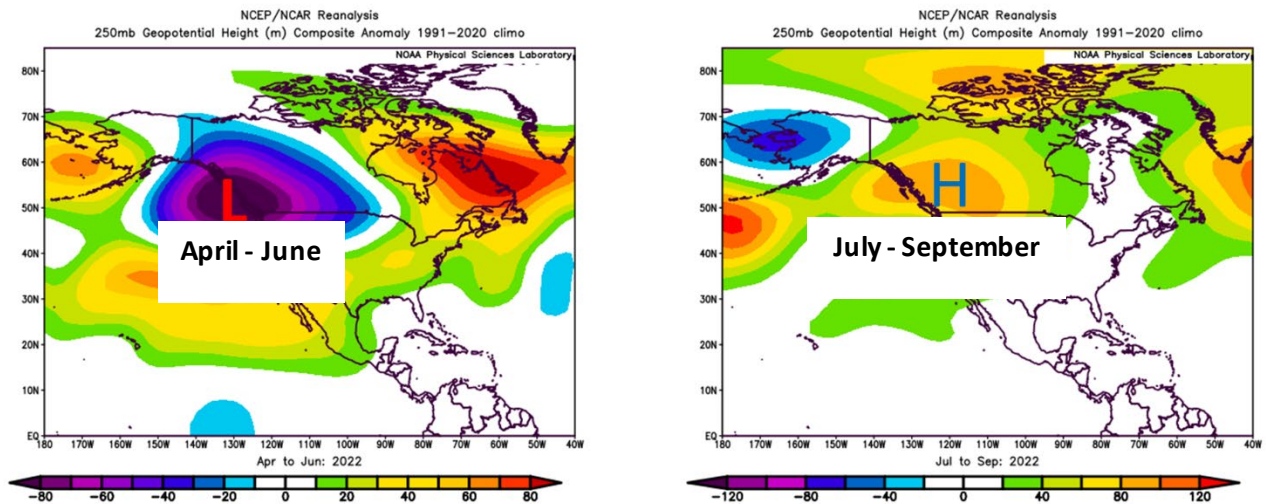


Figure 1: April to June (left) and July to September (right) exhibited directly opposite patterns. Record low heights in the spring resulted in numerous late spring rainstorms that contributed to high fuel loading and extended the green-up period. Persistent high pressure through the summer and fall kept temperatures well above average and deflected any rain producing storms northward into Alaska.

## Precipitation Anomaly in Inches

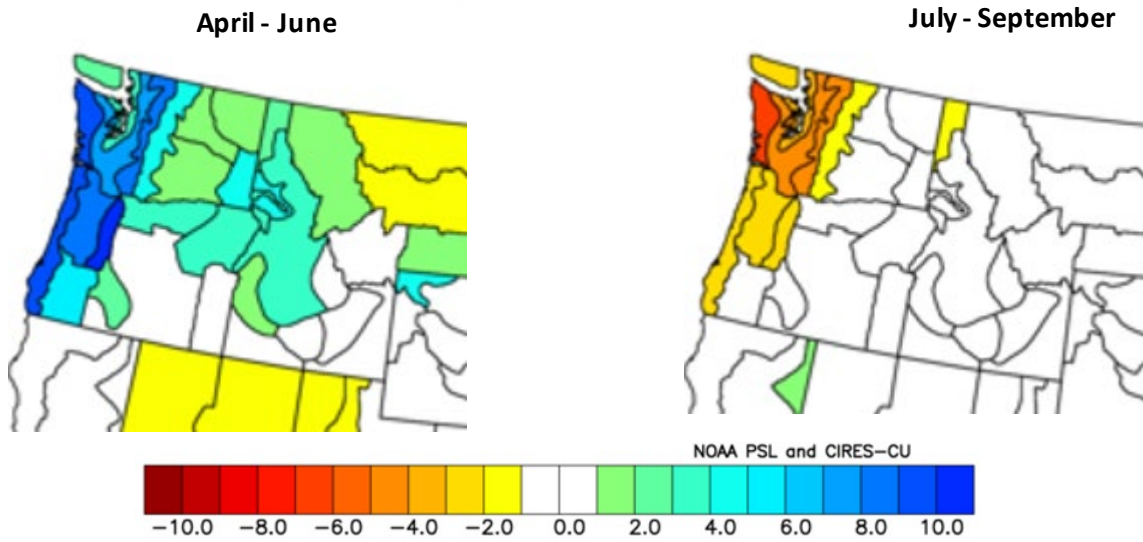


Figure 2: The stark difference between the two frames is a result of the switch in upper air patterns. The colored bar represents the inches above/below average for each of Washington's climate zones.

# Large Fire Summary

As of September 30, 2022, there have been 14 large, significant fires considered DNR jurisdiction only, or DNR was involved because of a threat to DNR jurisdiction. Large fires are typically those fires that are greater than 100 acres in timber or 300 acres in grass. For a location of the fires displayed in the table below, please see the Map of 2022 Large Fires for all of Washington located in the Appendix of this report.

LARGE DNR FIRE NAME and ACRES	Federal	Private	State	Tribal	Other	Total	Forested	Non-forested
BLACK HOLE	0	0	457	0	0	457	8	449
BOLT CREEK	10832	3816	67	0	0	14715	12909	1806
BOULDER MOUNTAIN (COST SHARE)	921	1312	0	0	0	2233	1477	756
COW CANYON	0	1968	3844	0	0	5812	1289	4523
GOAT ROCKS	8133	0	0	0	0	8133	5825	2308
KALAMA	494	1	0	0	0	495	492	3
LOCH KATRINE	952	966	0	0	0	1918	1650	268
NAKIA CREEK	0	401	734	0	734	1869	1223	646
NORTH FORK (Little Chill)	1817	0	0	0	0	1817	1401	416
STAYMAN FLATS	0	146	955	0	0	1101	0	1101
SUIXON	2112	0	0	0	0	2112	2064	48
VANTAGE HIGHWAY (COST SHARE)	1703	894	28046	0	15	30658	0	30658
WHITE RIVER (COST SHARE)	11057	47	18	0	0	11122	9469	1653
WILLIAMS LAKE	0	1856	13	0	0	1869	90	1779
<b>TOTAL</b>	<b>38021</b>	<b>11407</b>	<b>34134</b>	<b>0</b>	<b>749</b>	<b>84311</b>	<b>37897</b>	<b>46414</b>

Table 4: Large, significant fires for DNR in 2022, as of September 30, 2022. See Footnote #1 regarding Nakia Creek. It is listed here in this table with statistics used at the time the table was put together. This is reference only, knowing that at the time of this report, Nakia Creek was still an active incident.

The number of large fires is less than the number of last year (30 fires were noted in 2021). For the 14 fires noted in Table 4, total acres burned is 84,311, and of that, just over half of the acres are private, state, and other jurisdiction (46,290). Just less than half of the acres burned were on federal land (38,021). Any expenditures that DNR has incurred are described in the Financial Highlights section of this report. If expenditures were incurred while assisting a federal or tribal entity that weren't part of mutual assistance during initial attack, those expenditures will be reimbursed. DNR incurs cost associated with DNR protection. DNR protects state, private and other non-federal forestlands within Forest Protection Zones defined in RCW 76.04.165. Any response outside of these zones is considered an "other agency assist."

Also included in Table 4 is a breakdown of forested vs. non-forested acres burned for each fire. Bolt Creek burned the most forested acres (12,909), and Vantage Highway burned the most non-forested acres (30,658). For the 14 large fires, over half of the acres burned were non-forested (46,414) and less than half the acres burned were forested (37,897).

# Fire Season Statistics for DNR Fires

Between January 1 and September 30, 2022, the number of DNR Classified fires was 264 on the west side of the state and 567 on the east side, bringing the statewide total to 831 DNR Classified fires. This is lower than the 10-year average for all of the DNR regions (see Figure 3 below and Table 6 in the Appendix).

Most of the fires were contained before they had the chance to become large, complex fires. The year-to-date number of DNR fires contained at 10 acres or less was 88.6% (the performance measure to strive for is 95%, set by the Office of Finance and Budget).

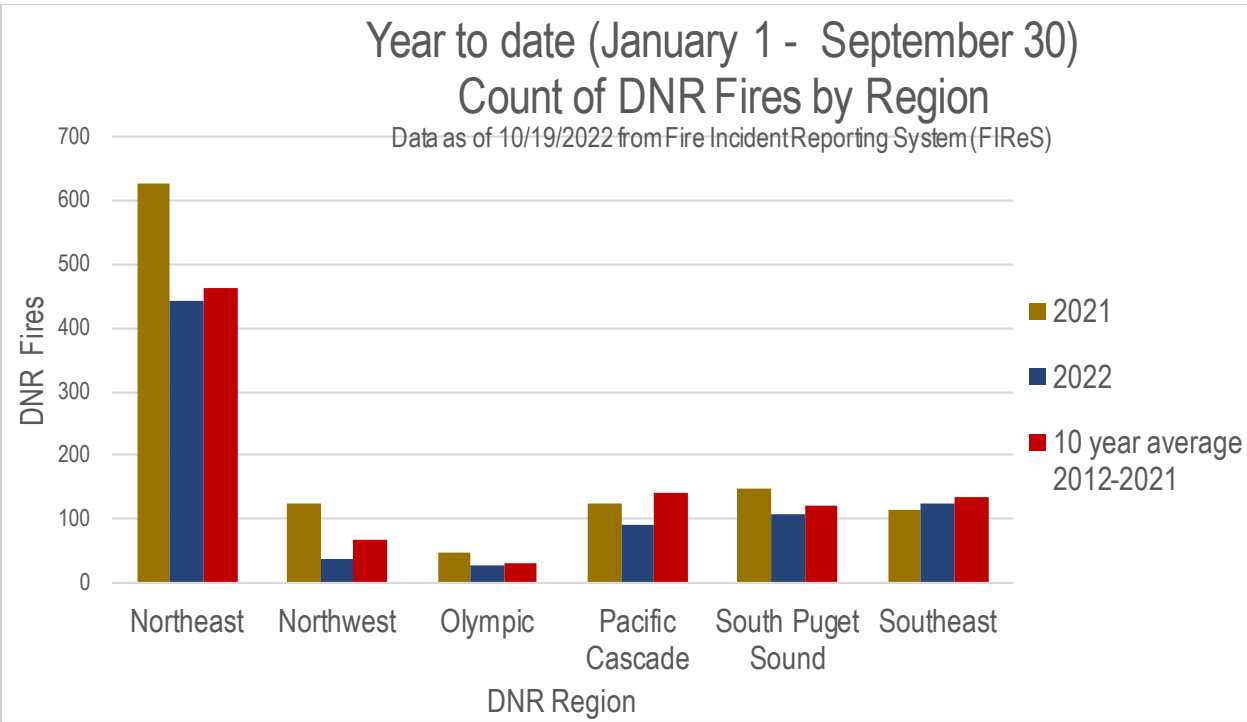
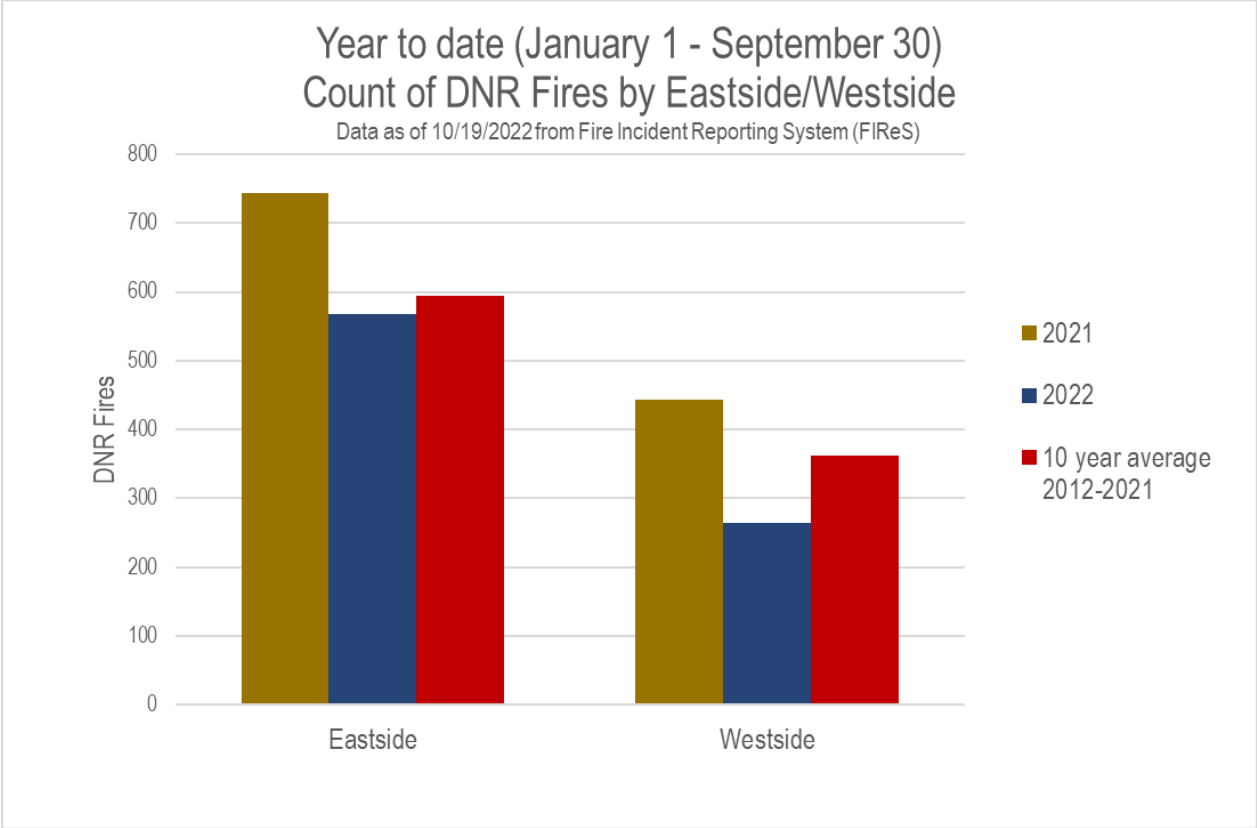


Figure 3: Count of DNR Fires by Region, for the period of January 1 through September 30.



*Figure 4: Count of DNR Fires for Eastside Regions (Northeast and Southeast) and Westside Regions (Northwest, Olympic, South Puget Sound, and Pacific Cascade) for the period of January 1 to September 30.*

Total acres burned for DNR fires also fell under the 10-year average for those fires that burned during the period January 1 to September 30. In those nine months, 84,801 acres were reported, which was considerably less than the 10-year average of 200,204 acres, statewide. The number of DNR acres burned in all fires across the state will be calculated at the end of the season, when reports and perimeters are finalized in January 2023, and will be available as a supplemental report in mid-February 2023.



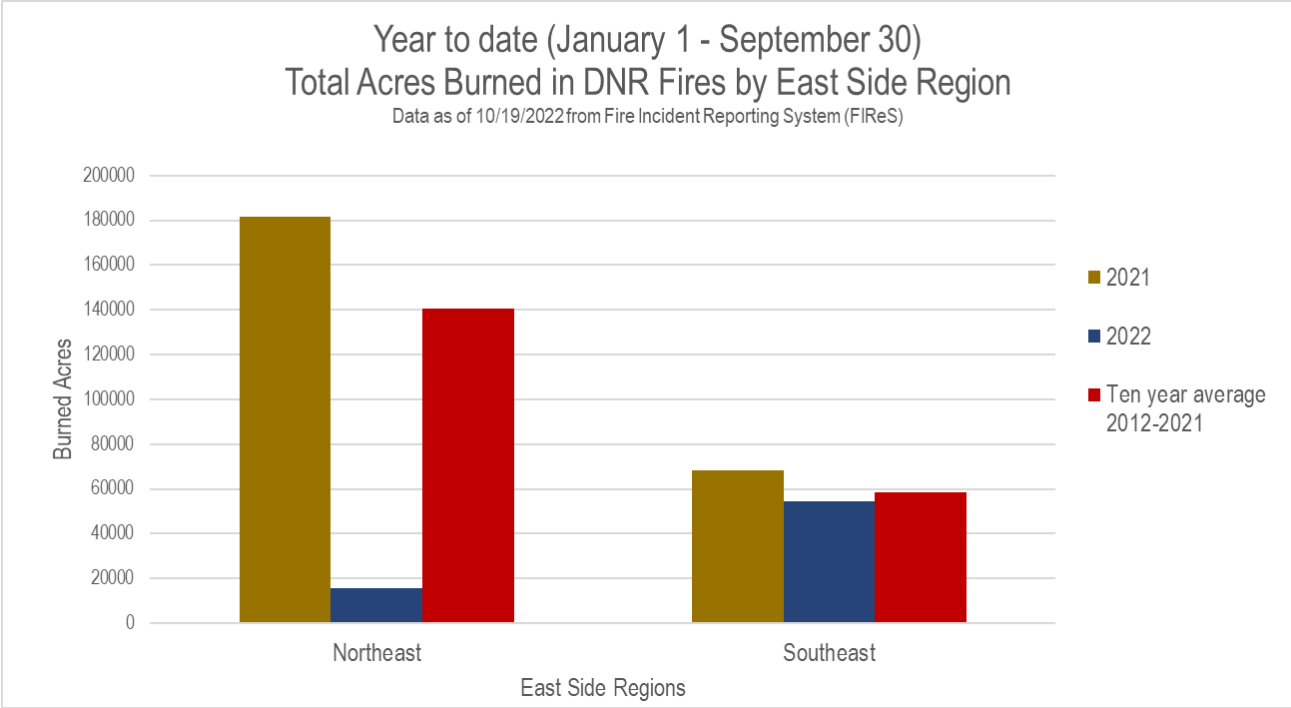


Figure 5: Total acres burned for DNR on the east side of the state, Year 2021, To-Date 2022, and Ten year average.

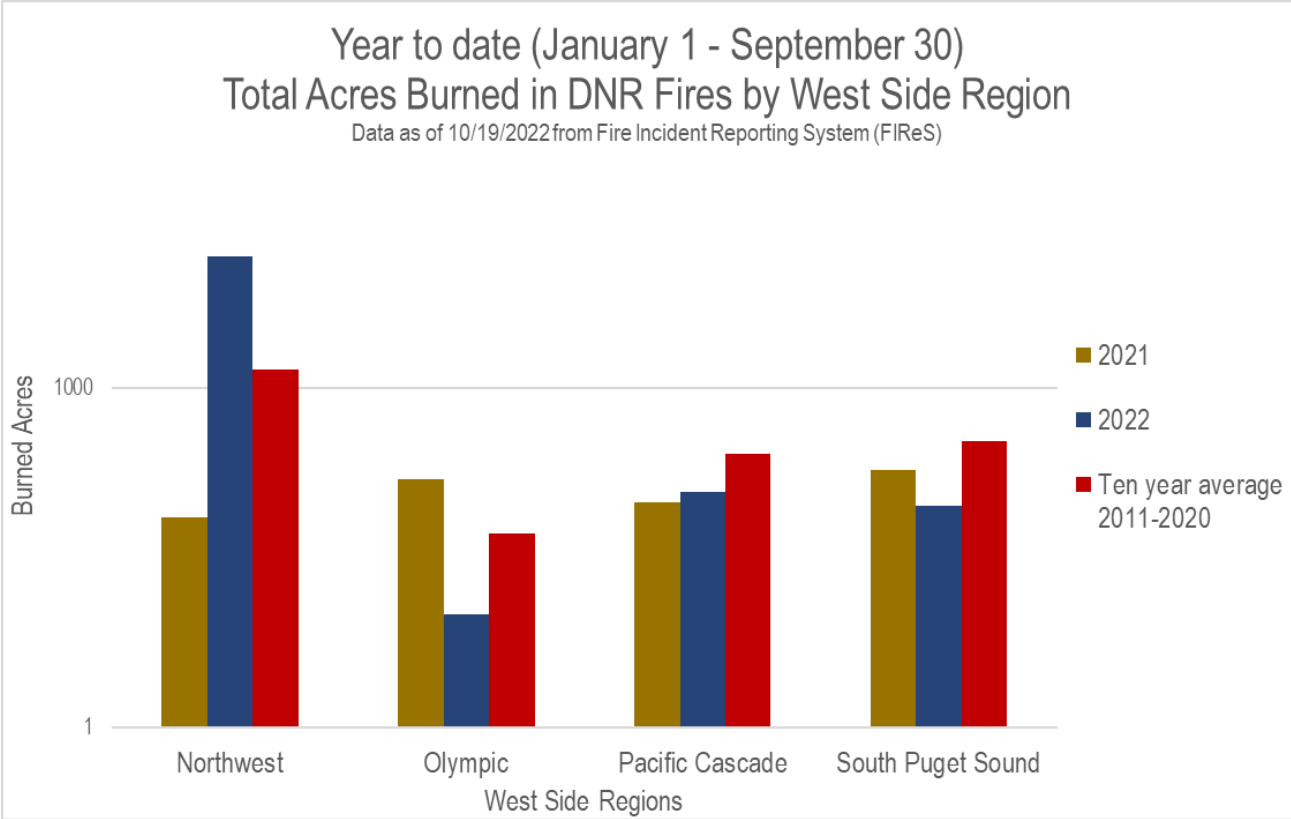


Figure 6: Total acres burned for DNR on the west side of the state, Year 2021, To-Date 2022, and Ten year average.

On January 1, 2022, DNR moved to the new general and specific cause standards set by the National Wildfire Coordinating Group (NWCG). Moving to these categories allowed DNR to improve reporting causes with more complete and reliable data, which will eventually provide for better targeted education and prevention program development. Agencies had up to ten years to make the transition to the new standard, but because DNR was already in the throes of updating its fire reporting procedures and system, it made sense to immediately transition to the new cause standards.

As of September 30, Debris and Open Burning attributed to 18% of the human-caused ignitions, Equipment and Vehicle use were 10% of the human ignition sources, and Recreation and Ceremony (where escaped campfires would exist) were 5%. Natural ignition (lightning) increased this year and represented 18% of the fire starts.

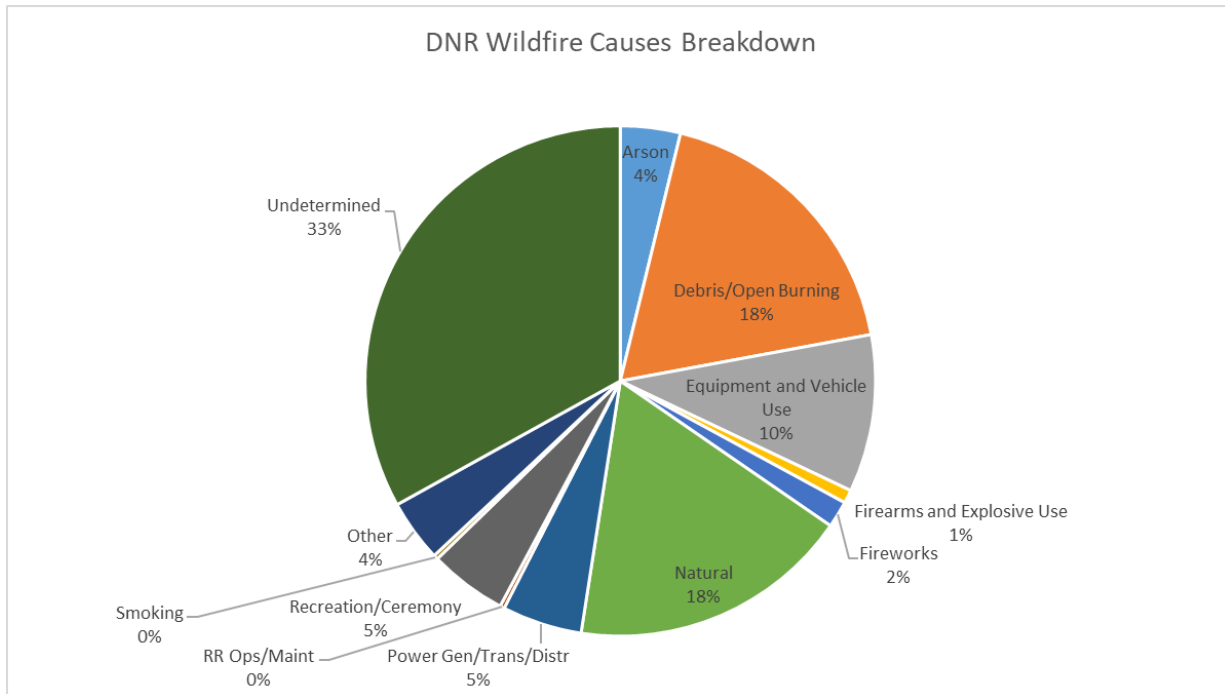


Figure 7: General Cause categories for those DNR fires that occurred during January 1 to September 30, 2022.

As a side note, specific causes associated with the Undetermined general-cause category includes fires that weren't investigated, fires where the origin or cause could not be identified, fires where the origin was destroyed, and fires that are still under investigation.

# Financial Highlights

In 2022, the Washington State Department of Natural Resources (DNR) had six significant and costly incidents that incurred a cost of \$1 million or greater. As of September 30, DNR estimates cost of \$6,105,763 for Vantage Highway, \$4,198,395 for Cow Canyon, \$2,174,364 for North Fork, \$12,502,896 for Boulder Mountain, \$7,053,910 for Bolt Creek, and \$1,563,168 for Williams Lake. The number of significant and costly incidents for 2022 was a decrease from 2021. In 2021 as of September 30, there were seventeen incidents that had a total estimated cost of \$68,085,704, compared to our estimate as of September 30 of this year of \$33,598,496. This is just under half of last year’s cost.

One additional incident exceeded costs of \$500,000. DNR estimates costs of \$722,739 for Stayman Flats. As of September 30, DNR estimates costs associated with Type 4 and 5 incidents at \$5.5 million.

DNR had six incidents that involved cost share with other agencies. See Table 5 for all incidents that involved cost shares with the associated jurisdictional agencies.

All direct cost associated with sending resources out of state is reimbursable through our agreements. There are two primary agreement types utilized: direct agreements between state forestry/natural resource agencies and the master agreement between Washington and the five main federal agencies which DNR is signatory<sup>2</sup>. If DNR has a direct agreement with the state assistance is being requested of, then DNR can order that assistance from the agency directly, and DNR will invoice them directly. If DNR does not have an agreement with that state, then the United States Forest Service (USFS) will order resources through the national system, and DNR will invoice the USFS, and the USFS will recover the funds from that state. Washington Fire Service resources sent out of the State of Washington are dispatched from their agreement with DNR and are considered DNR resources for billing purposes.

FIRE NAME	JURISDICTIONAL AGENCIES
Vantage Highway	DNR/BLM
White River	USFS/DNR
North Fork	DNR/USFS
Bolt Creek	DNR/USFS
Boulder Mountain	DNR/USFS
Williams Lake	DNR/WSP

*Table 5: All incidents involving cost share agreements with other agencies. Note: First agency listed was the payment agency for the incident.*

FMAG is a federally funded program administered through FEMA that provides assistance to state, local, and federally recognized tribal governments for the mitigation, management and control of fires on publicly or privately owned forests or grasslands. A FMAG declaration may be requested and issued for an uncontrolled fire when the threat of a major disaster exists. The declaration process initiated once the state submits a request for assistance to the FEMA Regional Director. FEMA will review the claim and will make a determination on whether the claim will be approved. In 2022, DNR had one incident declared eligible for Fire Management Assistance Grants (FMAG). This incident was the Bolt Creek Fire. When FMAG is declared, Washington State will recover 75% of eligible cost from FEMA.

The distribution of cost for the large fires can be found in Table 9 in the Appendix.

<sup>2</sup> The five main federal agencies include Bureau of Indian Affairs (BIA), United States Fish and Wildlife Service (USFW), United States Forest Service (USFS), Bureau of Land Management (BLM), and National Park Service (NPS).

The cost distribution tables include cost for all incidents that were significant and costly, or large in size. The costs are estimates as of September 30 and are based on actuals in DNR finance systems, and any estimated encumbrances for costs are not currently reflected in the actuals.

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# Appendices

## Definitions<sup>3</sup>

**Air Attack:** The deployment of a fixed-wing or rotary aircraft on a wildland fire, to drop retardant or extinguishing agents, shuttle and deploy crews and supplies, or perform aerial reconnaissance of the overall fire situation.

**Burn acreage on DNR protected lands:** the total sum of acres burned for fires listed as: "DNR protection-FFPA," "DNR protection non-FFPA under agreement," "Threat to DNR protection FFPA," and "Threat to DNR protection, non-FFPA under agreement" and instances where this field is null. This excludes fires labeled "DNR Assist Other Agency."

**Classified fire:** an uncontrolled fire requiring suppression action by the DNR or its partnering federal and/or local fire suppression agencies to prevent the fire from spreading to or burning on any lands for which DNR has protection responsibility. This excludes "false alarms," but includes "Unclassified" fires, a now-discontinued classification type used prior to 2019, for the 10-year average calculations.

**DNR Fires:** classified fires on DNR protected lands.

**DNR Protection:** any response in EIRS that is not considered "DNR Assist Other Agency." This includes "DNR protection-FFPA," "DNR protection non-FFPA under agreement," "Threat to DNR protection FFPA," and "Threat to DNR protection, non-FFPA under agreement" and instances where the field is null.

**DNR Responses:** any incident or false alarm to which DNR resources were dispatched, regardless of jurisdiction.

**Eastside/Westside:** refers to east or west of the Cascades based on region boundaries. Northeast and Southeast regions comprise east side while the remaining four regions comprise the west side.

**Green-up:** Green-up for the 1978 version of NFDRS model is defined as the beginning of a new cycle of plant growth. Green-up usually occurs once a year, except in desert areas where rainy periods can produce a flush of new growth more than once a year. Green-up may be signaled at different dates for different fuel models. Green-up should not be started when the first flush of green occurs in the area. Instead, the vegetation that will be the fire problem (represented by

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<sup>3</sup> Standard wildland fire terminology is governed by the National Wildfire Coordinating Group. The glossary can be found at [NWCG Glossary of Wildland Fire, PMS 205 | NWCG](#). DNR specific terminology is also listed here and has been agreed to by the Fire Intelligence Committee assembled by the Wildland Fire Management Division.

the NFDRS fuel model associated with the weather station) when it matures and cures should be identified. Green-up should start when the majority of this vegetation starts to grow.

**Preparedness Level:** Increments of planning and organizational readiness dictated by burning conditions, fire activity, and resource availability. Response and support to non-fire incidents requiring a significant commitment of resources may also affect Preparedness Levels. Preparedness levels are set at the National, Regional, and State level.

**Regions:** There are six DNR-specific regions across the state: Northeast, Northwest, Olympic, Pacific Cascades, South Puget Sound, and Southeast. See Figure 8.

**Type:** Refers to resource capability. A Type 1 resource provides a greater overall capability due to power, size, capacity, etc., than would be found in a Type 2 resource. Resource typing provides managers with additional information in selecting the best resource for the task.

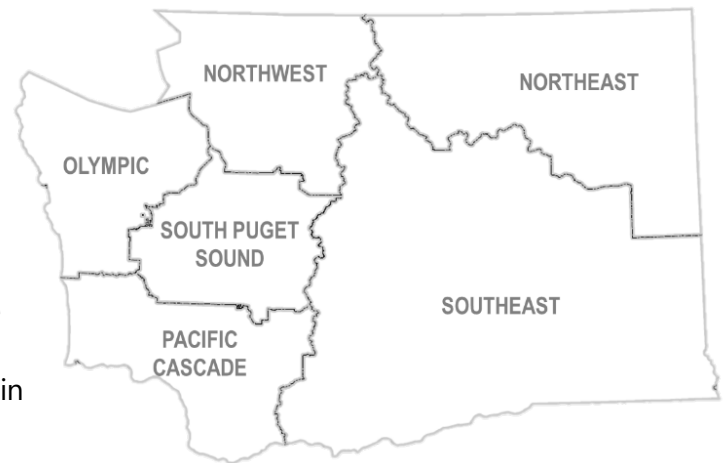


Figure 8: A map displaying the locations of the six regions of Washington DNR Wildland Fire Management

Tables and Figures

**Table 6: Year-to-date DNR Fires, 2012 to 2022. DNR fires are classified fires on or threatening DNR protected lands. In 2022, there were 831 DNR fires, which is lower than the running average of 955.3 DNR fires.**

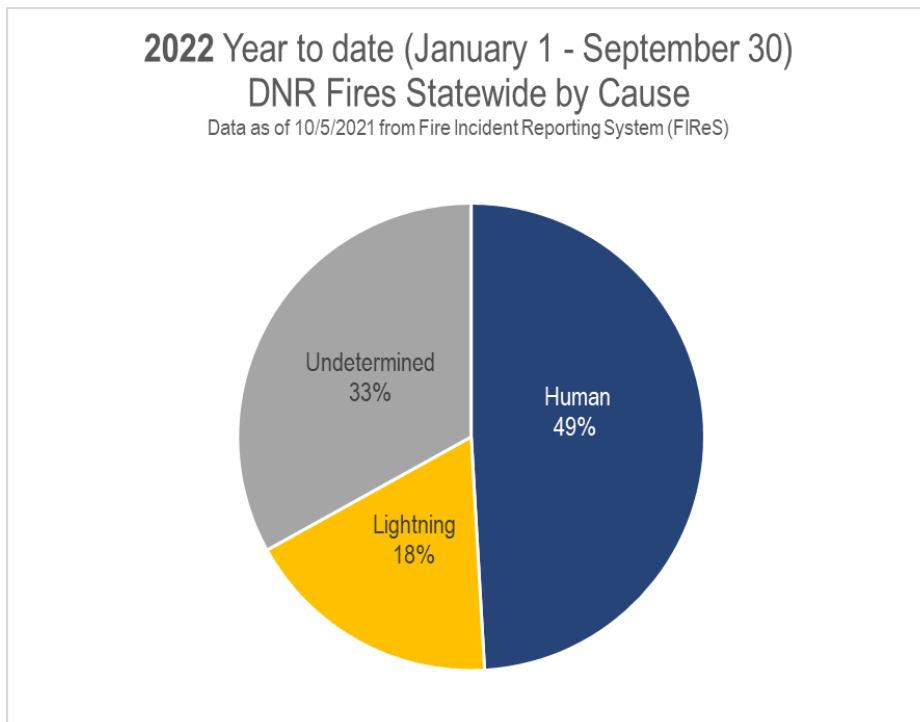
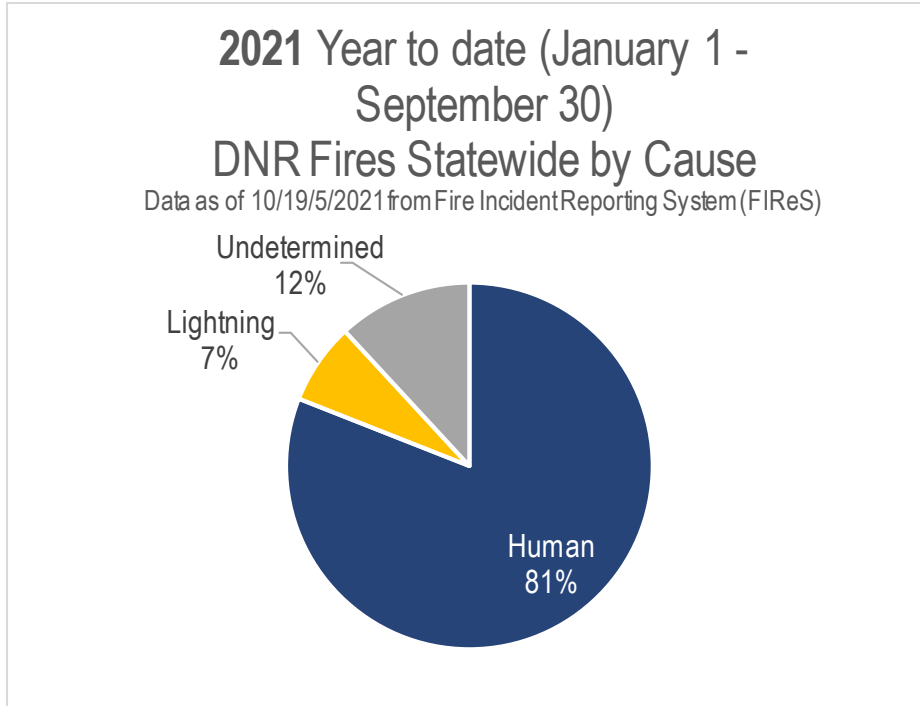
2022 Year to Date (January 1 - September 30)								
DNR Fires by Region and Year								
Data as of 10/19/2022 from Fire Incidents Reporting System (FIReS)								
	Region	Northeast	Northwest	Olympic	Pacific Cascade	South Puget Sound	Southeast	Total
Year	2012	402	60	50	148	56	139	<b>855</b>
	2013	428	52	28	156	37	142	<b>843</b>
	2014	483	33	32	174	83	153	<b>958</b>
	2015	519	73	29	180	138	135	<b>1074</b>
	2016	384	55	18	128	126	128	<b>839</b>
	2017	347	79	24	127	128	112	<b>817</b>
	2018	486	64	38	148	186	133	<b>1055</b>
	2019	434	76	26	134	145	147	<b>962</b>
	2020	498	63	19	102	154	126	<b>962</b>
	2021	628	126	48	123	147	116	<b>1188</b>
	2022	443	36	29	91	108	124	<b>831</b>
	<b>Total</b>	<b>5052</b>	<b>717</b>	<b>341</b>	<b>1511</b>	<b>1308</b>	<b>1455</b>	<b>10384</b>
<b>Ten year average 2012-2021</b>		<b>460.9</b>	<b>68.1</b>	<b>31.2</b>	<b>142</b>	<b>120</b>	<b>133.1</b>	<b>955.3</b>

**Table 7: Year-to-date DNR Acres Burned, 2012 to 2022. Acres burned for 2022 were 84,801 which is 33% of the acres burned in 2021, which was 250,601.**

2022 Year to Date (January 1 - September 30)								
DNR Acres Burned by Region and Year								
Data as of 10/19/2022 from Fire Incidents Reporting System (FIReS)								
	Region	Northeast	Northwest	Olympic	Pacific Cascade	South Puget Sound	Southeast	Total
Year	2012	38,158	12	47	83	41	29,200	67,541
	2013	3,659	47	69	325	29	121,908	126,038
	2014	264,697	71	13	341	308	49,230	314,660
	2015	650,024	113	59	606	246	102,122	753,171
	2016	13,314	433	10	124	79	2,460	16,420
	2017	2,675	299	4	336	1,625	16,240	21,179
	2018	11,969	80	83	115	269	94,802	107,318
	2019	47,591	77	54	341	190	17,172	65,426
	2020	193,702	198	23	269	480	85,008	279,681
	2021	181,652	72	159	98	191	68,429	250,601
	2022	15,451	14,635	10	121	91	54,493	84,801
	<b>Total</b>	<b>1,422,893</b>	<b>16,039</b>	<b>531</b>	<b>2,761</b>	<b>3,549</b>	<b>641,064</b>	<b>2,086,836</b>
<b>Ten year average 2012-2021</b>		<b>140,744</b>	<b>1,458</b>	<b>52</b>	<b>264</b>	<b>346</b>	<b>58,657</b>	<b>200,204</b>



**Figure 9: Comparing Causes between last year at this time and this year at this time (January 1 through September 30).**



**Table 8: Structures and residences damaged or destroyed in the 14 significant fires with DNR involvement. Data are from ICS-209 forms. NOTE: See Footnote #1 regarding Nakia Creek. It is listed here in this table with statistics used at the time the table was put together. This is reference only, knowing that at the time of this report, Nakia Creek was still an active incident.**

#	Fire Name	Start Jurisdiction	Residences Damaged	Residences Destroyed	Total Structures Damaged or Destroyed
1	BLACK HOLE	DNR	0	0	0
2	BOLT CREEK	DNR	0	0	1
3	BOULDER MOUNTAIN (COST SHARE)	DNR	0	0	0
4	COW CANYON	DNR	0	0	4
5	GOAT ROCKS	USFS	0	0	0
6	KALAMA	USFS	0	0	0
7	LOCH KATRINE	USFS	0	0	0
8	NAKIA CREEK	DNR	0	0	0
9	NORTH FORK (Little Chill)	NPS	0	0	0
10	STAYMAN FLATS	DNR	0	0	0
11	SUIXON	USFS	0	0	0
12	VANTAGE HIGHWAY (COST SHARE)	DNR	0	1	4
13	WHITE RIVER (COST SHARE)	USFS	0	0	0
14	WILLIAMS LAKE	WFS	0	0	5

**Table 9: Estimated Cost by Incident, Large and/or Significant Incidents with DNR Involvement.**

FIRE NAME	REGION	COST SHARE	FMAG	TOTAL ESTIMATED COST	EST. AMOUNT BILLABLE OR RECEIVABLE THROUGH COST SHARE	DNR SALARIES & BENEFITS	DNR EQUIP.	AIR RESOURCES	MISC. EXPENSES	DOC	CONTRACTORS	COOPERATORS	FEDERAL RESOURCES
Vantage Highway	SE	YES	NO	6,105,763	968,351	703,719	47,321	1,544,689	593,581	99,841	336,227	324,095	1,487,939
Cow Canyon	SE	NO	NO	4,198,395	0	645,569	55,711	661,660	492,826		687,423	15,206	1,640,000
Northfork	NE	YES	NO	2,174,364	-512,630	463,376	14,717	1,252,248	528,925	45,165	174,057	208,505	1)
Boulder Mountain	NE	YES	NO	12,502,896	1,132,183	1,282,202	112,708	714,289	910,802	130,682	1,355,304	395,113	6,469,612
Bolt Creek	NW		YES	7,053,910	2)	1,611,631	58,044	748,666	1,792,457	100,416	1,730,257	1,012,439	2)
Williams Lake	NE		NO	1,563,168	-653,003	572,007	89,876	243,469	658,788	155,536	295,134	216,936	15,106

COMMENTS: All costs are DNR's estimated costs through September 30, 2022 based on our actual expenditures currently reflected in our agency financial reports combined with estimated costs for resources that are not yet reflected in agency financial reports. 1) The cost share between United States Forest Service and DNR for the Northfork fire is on aircraft only each agency is paying their own cost for all other resources, due to this DNR does not have an estimated cost on the federal resources that responded to the incident. 2) Our estimated amount billable or receivable and estimated cost of federal resources for the Bolt Creek Fire was not available at the time this report was prepared due to the cost share agreement between Washington State Department of Natural Resources was still in effect at the time this report was prepared.

# Map of 2022 Fire Locations

