WILDFIRE RISK ASSESSMENT CONCEPTS & DATA

The Advanced Oregon Wildfire Risk Explorer (OWRE) map viewer organizes data into folders based on wildfire risk concepts. All OWRE advanced reports will include information about Overall wildfire risk, Burn probability, Flame length, Overall potential impact, Hazard to potential structures, Fire history, Land management, and Estimated housing density. Users can select additional data layers of interest, which will appear after the layers listed above.

Wildfire Risk

Overall wildfire risk takes into account both the likelihood of a wildfire and the exposure and susceptibility of mapped valued resources and assets combined. The dataset considers (1) the likelihood of wildfire >250 acres (likelihood of burning), (2) the susceptibility of resources and assets to wildfire of different intensities, and (3) the likelihood of those intensities. Blank areas either have no currently mapped assets or resources and/or are considered a non-burnable fuel in terms of wildfire. Note that agricultural lands are considered non-burnable in this map, even though fires can occur in these areas and may spread into more typically considered burnable areas such as forested lands. Data layers include: Overall wildfire risk, Wildfire risk to assets, and Wildfire risk to people and property.

Wildfire Threat



Wildfire threat shows the likelihood of a large wildfire, the average intensity and the likelihood of higher intensities, conveyed by flame length. Data layers include: Burn probability, Average flame length, Probability of exceeding 4'flames, and Probability of exceeding 8' flames. Additional data layers that show wildfire threat are found under the Fire History and Active Fires folder, where historical fire starts and historical fire perimeters are located.

Wildfire Potential Impacts

Wildfire potential impacts shows the actual exposure of mapped resources and assets. The data layers do not incorporate the likelihood of burning, they only show the consequence of wildfire if it were to occur. Data layers include: Overall potential impact,Potential impact to people and property, Potential impact to infrastructure, Potential impact to timber resources, Potential impact to wildlife, and Potential impact to forest vegetation. The layers (Potential impact to timber resources, wildlife, and forest vegetation) may be useful when targeting fuels treatment. These layers are influencing the "Benefit" areas in the Overall wildfire risk map - they show areas where there is ecological opportunity to restore historical or desired conditions and/or potentially reduce the risk of catastrophic wildfire with managed fire use or other management. The Potential impact to forest vegetation optional report element is coupled with historical fire regime information to give basic context when comparing historical and current conditions.

Hazard to Potential Structures

Hazard to potential structures depicts the hazard to hypothetical structures in any area if a wildfire were to occur. This differs fromPotential Impacts, as those estimates consider only where people and property currently exist. In contrast, this layer maps hazard to hypothetical structures across all directly exposed (burnable), and indirectly exposed (within 150 meters of burnable fuel) areas inOregon. As with the Potential Impacts layers, the data layer does not take into account wildfire probability, it only shows exposure and susceptibility.

Fire Model Inputs and Fuelscape

These layers are the fuels and topography used to run the fire model in the 2018 Pacific Northwest QuantitativeWildfire Risk Assessment. Data layers include: Fuel models, Fuel model groups, Forest canopy base height, Forest canopy height,Forest canopy cover, Forest canopy bulk density, Slope, Elevation and Aspect. Fuel models and groups characterize local surface vegetation composition relative to carrying fire more precisely than a basic land cover or vegetation maps. Fuel models indicate the type of potential wildfire based on the fuels that will ignite and spread fire. Canopy data layers characterize vegetation structure for fire modeling: base height, cover, and bulk density estimates can show where there may be propensity for ladder fuels (ground vegetation and trees that reach up to tree branches and upper forest canopy), and where contiguous forest canopies have potential for canopy fire.Note that not all of these layers are available to select for use in the OWRE advanced reports, but all of them are available for download and they are described in the metadata. Also note that weather, the third part of the three maor elements that determine wildfire occurrence and intensity, is not included in this data distribution - please see the full report to understand the weather parameters used in the assessment.

For more detailed information, please see the full 2018 PNW Quantitative Wildfire Risk Assessment report:
oe.oregonexplorer.info/externalcontent/wildfire/reports/20170428_PNW_Quantitative_Wildfire_Risk_Assessment_Report.pdf

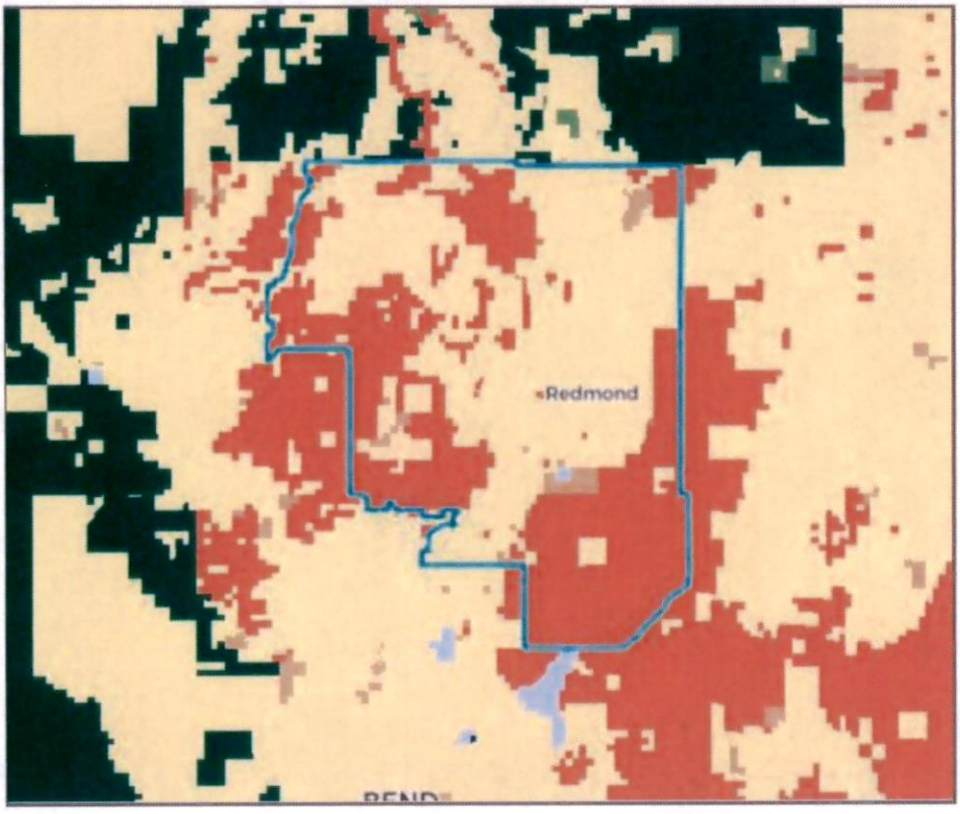
Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)

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LAND OWNERSHIP AND MANAGEMENT

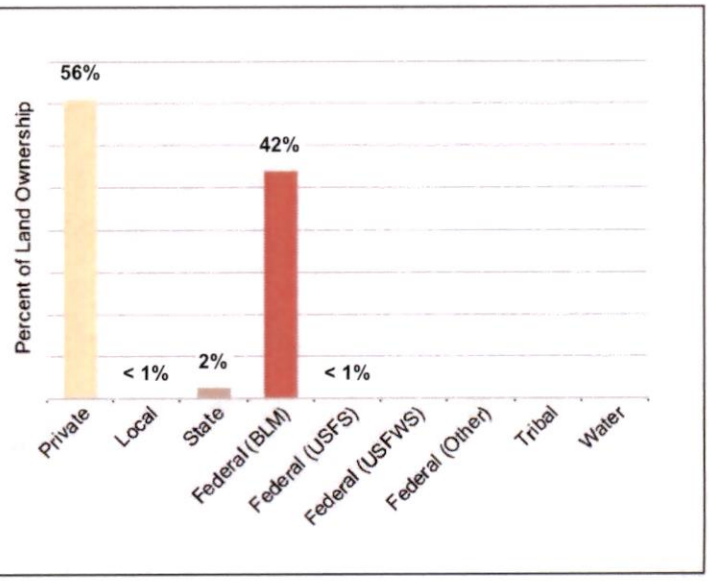


Knowing the land ownership and management in an area is important for hazard planning and awareness when wildfires occur. Oregon has a complete and coordinated wildfire management system between local, private, tribal, state, and federal agencies. These entities participate to fight fire in local areas and throughout the state according to their jurisdictions and protection responsibilities. Different land owners and managers have a variety of highly valued resources and assets to protect. Agencies differ in land use and overall management, including fire management.

The map, table and charts below show the breakdown of ownership types in your area.

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	Major Landowner/Manager	Acres
	Private	71,330
	Local	177
	State	2,521
	Bureau of Land Management (BLM)	54,164
	US Forest Service (USFS)	10
	US Fish & Wildlife (USFWS)	0
	Other Federal	0
	Tribal	0
	Water	0



Source: Bureau of Land Management, 2015

** Values may add up to over 100% due to rounding precision*

Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)

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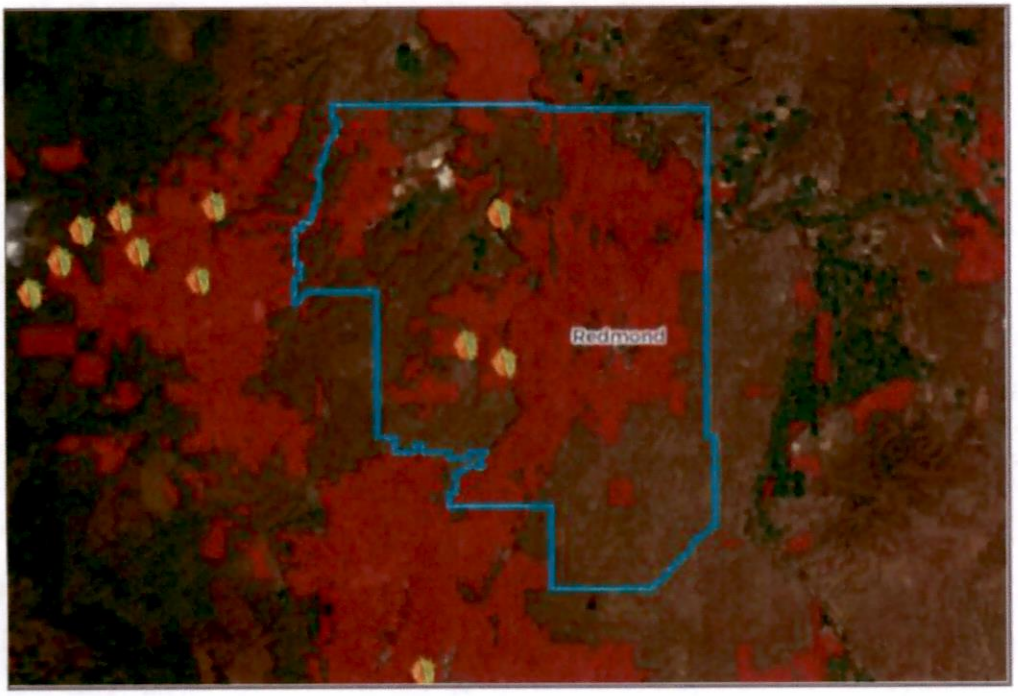
OREGON WUI COMMUNITY HAZARD RATINGS

Counting locally identified communities and neighborhoods, there are up to 6.9 million acres of Wildland Urban Interface (WUI) areas in Oregon. These areas were identified using a base WUI dataset from Radeloff, V.C., et. al, 2017 (published by USFS RDA), which incorporated 2010 census and 2011 land cover data. Locally mapped communities from Community Wildfire Protection Plans (CWPPs) from 2008 through 2013 were associated with the WUI geography. Department of Land Conservation & Development 2017 Oregon Land Use Zoning was also included for recent residential and developed or developing rural growth since the 2010 census. A cross-check was also made with the "100 Communities at Risk" report from the QWRA. Note that this WUI acreage contrasts with the 2.4 million acres from the West Wide Risk Assessment (Where People Live/Wildland Development Areas). The source Radeloff et. al WUI data used census block housing counts and land cover as opposed to WWRA Landscan night lights and housing densities. Acreage is larger in this Oregon WUI due to some rural areas having built environments along roads that spline two or more large census blocks, and we erred on the side of inclusion to add those entire areas to the dataset and not disrupt the original WUI geography. Also very small rural town centers that can potentially be encompassed by catastrophic wildfire, are kept whole in the Oregon WUI dataset.

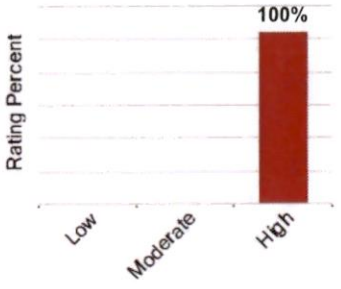
Burn Probability from the QWRA was used to assign a wildfire hazard rating to the built environment and homes in these areas. Hazard levels are based on modeled vegetation, not on building construction materials or ingress/egress issues. For a comprehensive analysis of wildfire risk and understanding of the potential threat of wildfire to your community, view the WUI combined with local fire starts and information in your Community Wildfire Protection Plan. A Community Wildfire Protection Plan (CWPP) is the product of collaboration between local communities and agencies interested in reducing wildfire risk and addressing response in a comprehensive plan. It also allows counties to prioritize and mitigate high risk areas, enhance safety and better protect themselves and their forested landscapes from wildfire.

Even in areas where risk is high, defensible space and Firewise USA® principles can be incredibly useful in minimizing the risk to homes in the Wildland Urban Interface.

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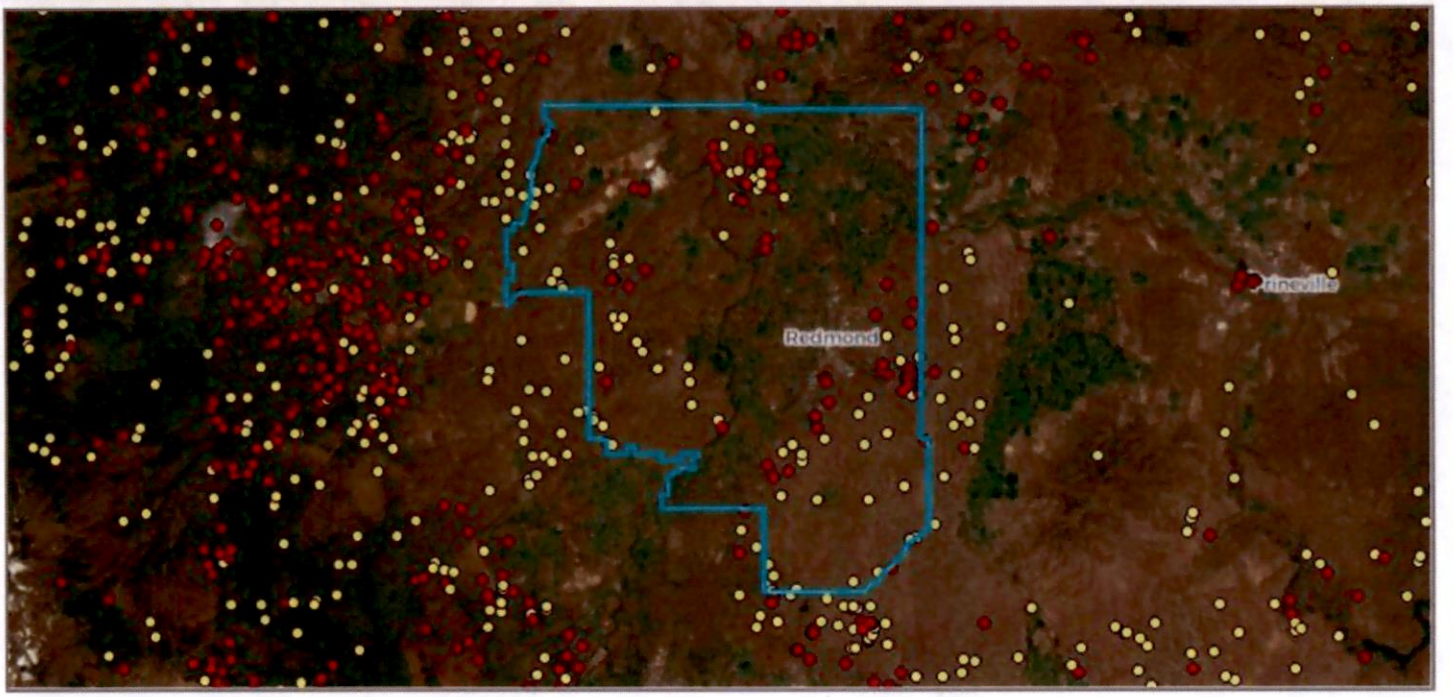


WUI Hazard Area Acres in Greater Redmond CWPP FINAL



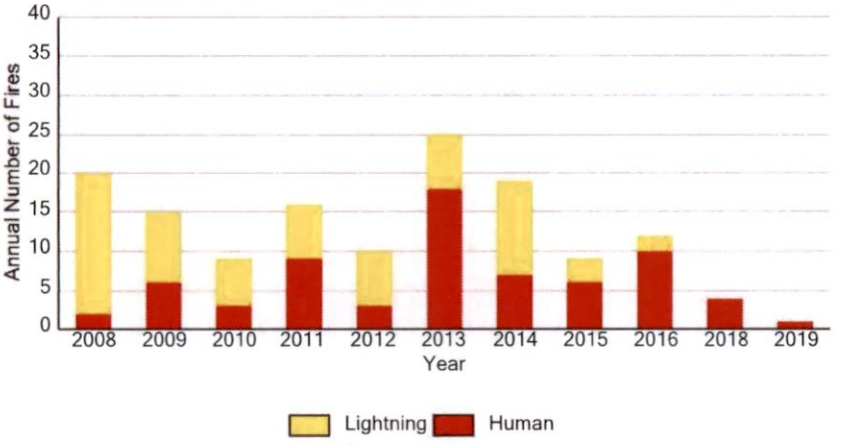
	Rating	Acres
	Low	0
	Moderate	0
	High	57,590
	Firewise Site	

FIRE HISTORY - FIRE IGNITIONS



Greater Redmond CWPP FINAL fire starts between 2008-2019

Total Acres Burned	148
Total Number of Fires	140
Average Acres Burned Per Year	15
Average Fires Per Year	14
Percent Lightning Caused	50.7%
Percent Human Caused	49.3%



Knowing where and why fires start is the first step in awareness, prevention, and mitigation. Viewing local fire starts in conjunction with burn probability (provided later in this report) provides a comprehensive view of local fire history and potential.

Statewide, 71% of fires recorded by ODF are human-caused, and many of these fires are near populated areas. Lightning caused fires make up only 29% of fire starts, but tend to burn more acres as they are often located in remote areas.

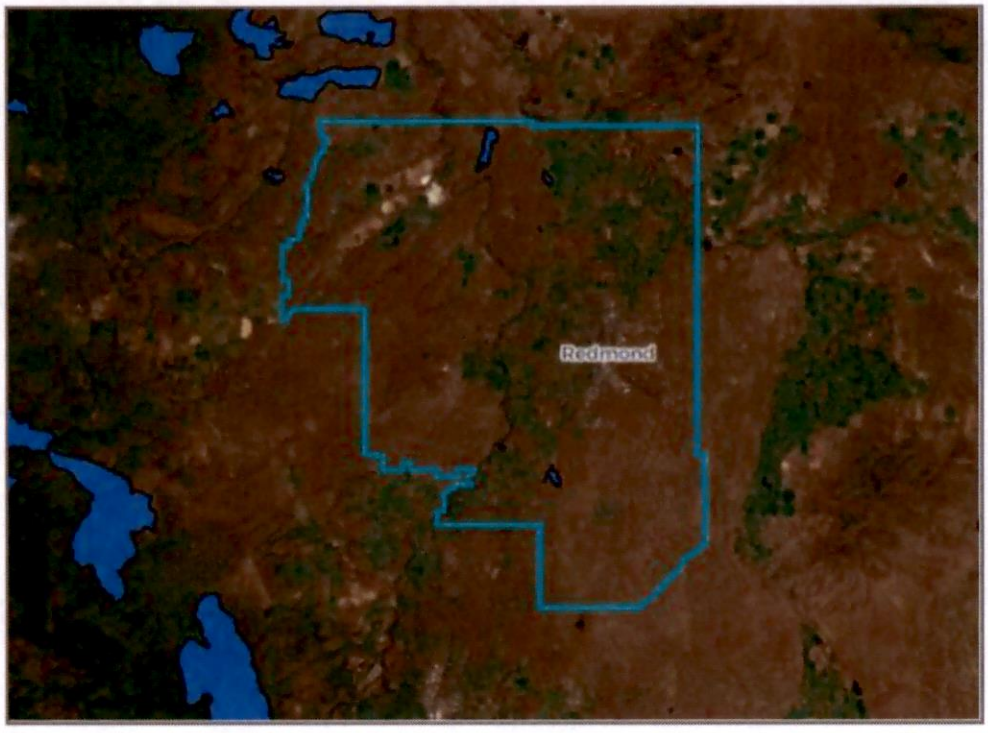
The map, table and charts on this page show the cumulative number fire starts in your area.

Source: Short, K. and Oregon Department of Forestry, 2019

FIRE HISTORY - FIRE PERIMETERS

Although most wildfires in Oregon are human-caused and suppressed quickly while small, Oregon has experienced many large wildfires. The map and table below show the footprints of fires that have occurred in your area since 2000.

Perimeter



Wildfires in Greater Redmond CWPP FINAL

Wildfire Name	Year	Acres Burned
JAGUAR 0514 RS	2018	10
MM 144	2011	55
CROOKED	2007	304
BRAND	2005	98
SMITH	2005	16

Source: National Interagency Fire Center: https://www.nifc.gov/

For more information about previous large wildfires, see: National Interagency Fire Center
https://www.nifc.gov/fireInfo/fireInfo_main.html

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Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)

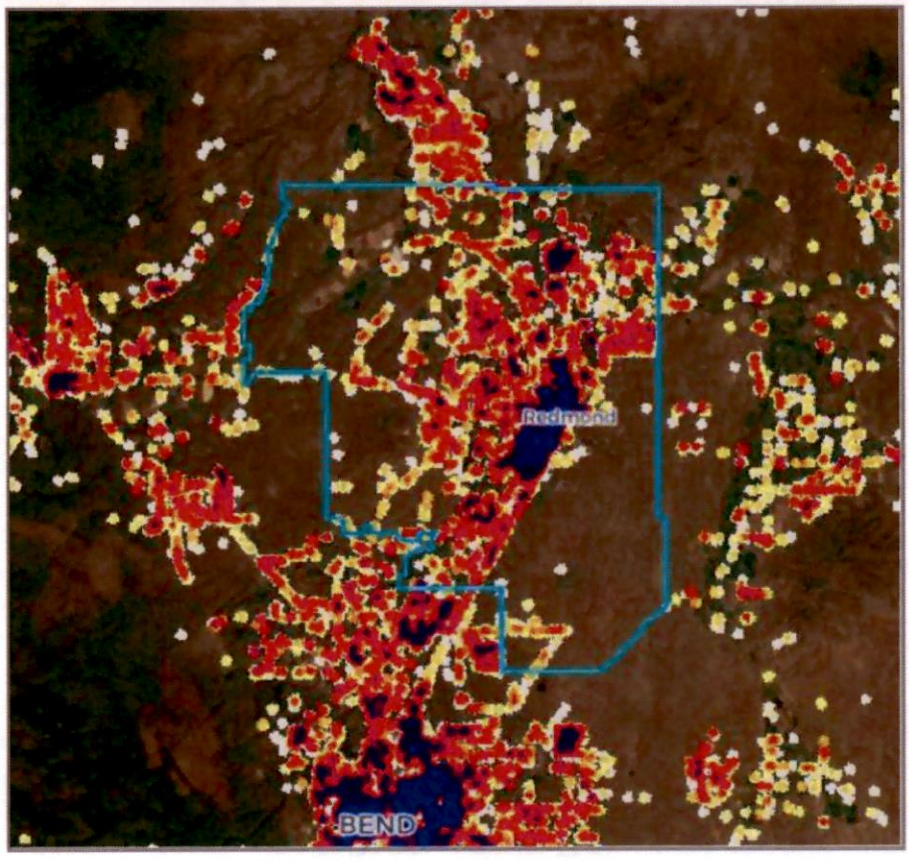
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HOUSING DENSITY - WHERE PEOPLE LIVE

Areas where people live are a primary concern when assessing wildfire risk. Especially critical is the Wildland Urban Interface (WUI) - areas where houses and other development meet or mix with undeveloped natural areas, with a close proximity of houses and infrastructure to flammable wildland vegetation.

In the U.S., the number of homes in the WUI increased by 13.4 million since 1990. This expansion of the WUI poses particular challenges for wildfire management, creating more structures and populations at risk in environments where firefighting is often difficult. In Oregon, nearly 2.4 million acres are considered WUI areas, about 3.8% of the state. Of the nearly 1.7 million homes in Oregon, over 603,000, or 36%, are in the WUI.

The map and table on this page shows the location and density of where people live in your area.



Greater Redmond CWPP FINAL housing density

Category	Acres	%*
<1 house per 40 acres	6,138	5
1 per 40 acres to 1 per 20 acres	5,709	4
1 per 20 acres to 1 per 10 acres	8,827	7
1 per 10 acres to 1 per 5 acres	8,294	6
1 per 5 acres to 1 per 2 acres	8,696	7
1 per 2 acres to 3 per acres	5,309	4
> 3 per acres	1,366	1

Source: 2013 West Wide Wildfire Risk Assessment, ODF

** Values may add up to over 100% due to rounding precision*

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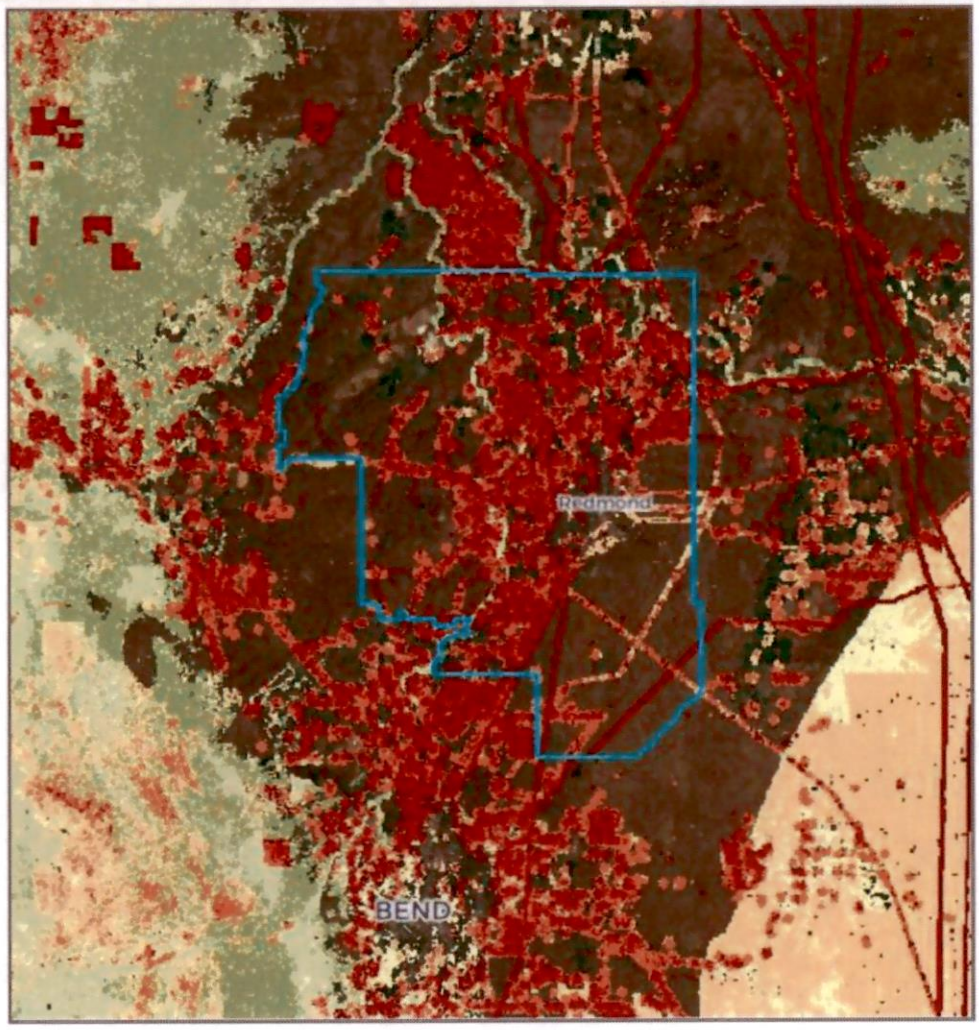
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OVERALL WILDFIRE RISK

Overall wildfire risk combines both the likelihood of a wildfire and the expected impacts of a wildfire on highly valued resources and assets. (See other sections for more information on Burn probability and Overall potential impact.) Overall wildfire risk also reflects the susceptibility of resources and assets to wildfire of different intensities, and the likelihood of those intensities.

Mapped resources and assets include critical infrastructure, developed recreation, housing unit density, seed orchards, sawmills, historic structures, timber, municipal watersheds, vegetation condition, and terrestrial and aquatic wildlife habitat.

The data values in the overall wildfire risk map and chart reflect a range of impacts from a very high negative value, where wildfire is detrimental to one or more resources or assets, to positive, where wildfire has an overall benefit (e.g., forest health or wildlife habitat).



Overall wildfire risk: Legend	
Very High	Wildfire risk is very highly negative (top 5% of values).
High	Wildfire risk is highly negative (80th to 95th percentile).
Moderate	Wildfire risk is moderately negative (50th to 80th percentile).
Low	Wildfire risk is slightly negative(29th to 50th percentile).
Low Benefit	Wildfire is slightly beneficial (14.5 to 29th percentile).
Benefit	Wildfire is beneficial overall (0-14.5th percentile).
Non-burnable	There are no highly valued resources or assets mapped in the area, or it is considered non-burnable (urban, agriculture, etc).

Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)

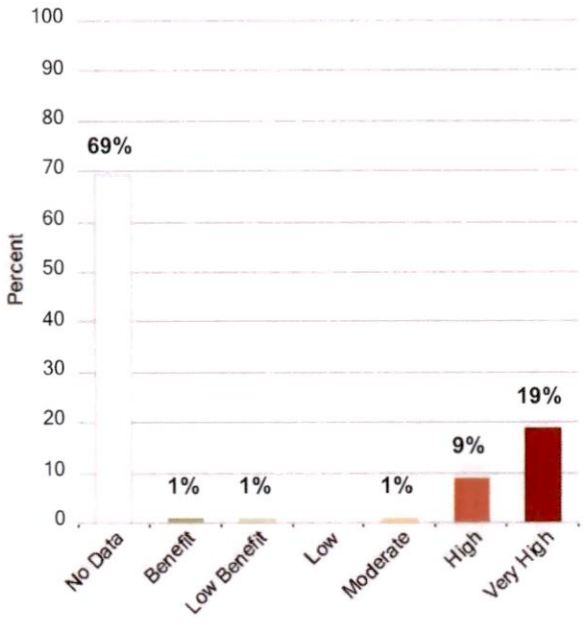
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This page contains additional information about overall wildfire risk, including a table of classes by ownership to determine the distribution of categories across ownerships, and a chart of overall percentages of classes across the area. The inset box displays sub-watershed summaries for landscape-scale prioritization.

Overall wildfire risk in Greater Redmond CWPP FINAL: estimated acres by ownership

Category	Total	Private	Local	State	BLM	USFS	USFWS	Other Fed	Tribal
Very High	24,848	17,468	18	515	6,847	0	0	0	0
High	11,361	6,590	4	125	4,642	0	0	0	0
Moderate	1,608	1,043	3	24	538	0	0	0	0
Low	158	112	0	2	44	0	0	0	0
Low Benefit	775	560	2	42	171	0	0	0	0
Benefit	877	507	1	178	191	0	0	0	0
No Data	88,572	45,062	144	1,629	41,725	12	0	0	0
Total Area	128,199	71,342	172	2,515	54,158	12	0	0	0

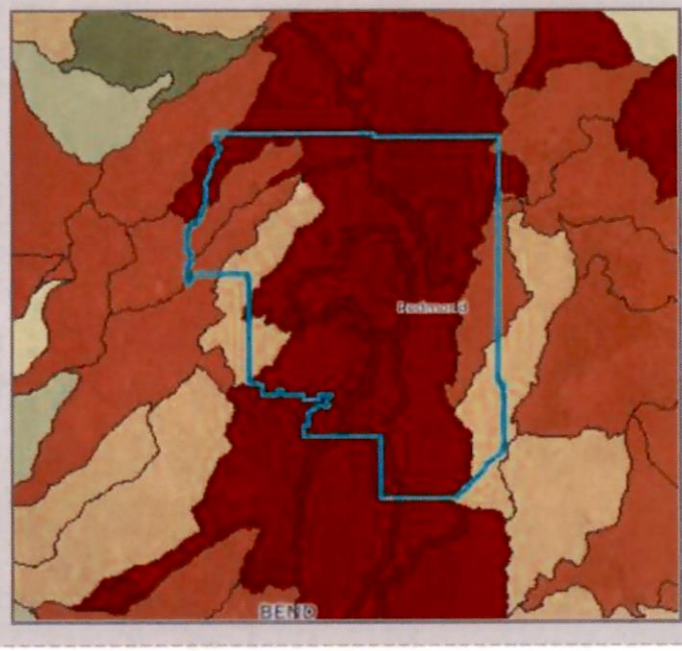
Overall wildfire risk in Greater Redmond CWPP FINAL *



Source: 2018 Pacific Northwest Quantitative Wildfire Risk Assessment, US Forest Service

** Values may add up to over 100% due to rounding precision*

Overall wildfire risk in Greater Redmond CWPP FINAL: sub-watershed summary map. Overall wildfire risk is summarized at the sub-watershed (6th field Hydrologic Unit Code, HUC12) level. Watershed summaries enable you to view the landscape context and identify and compare sub-watersheds for prioritization.



Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

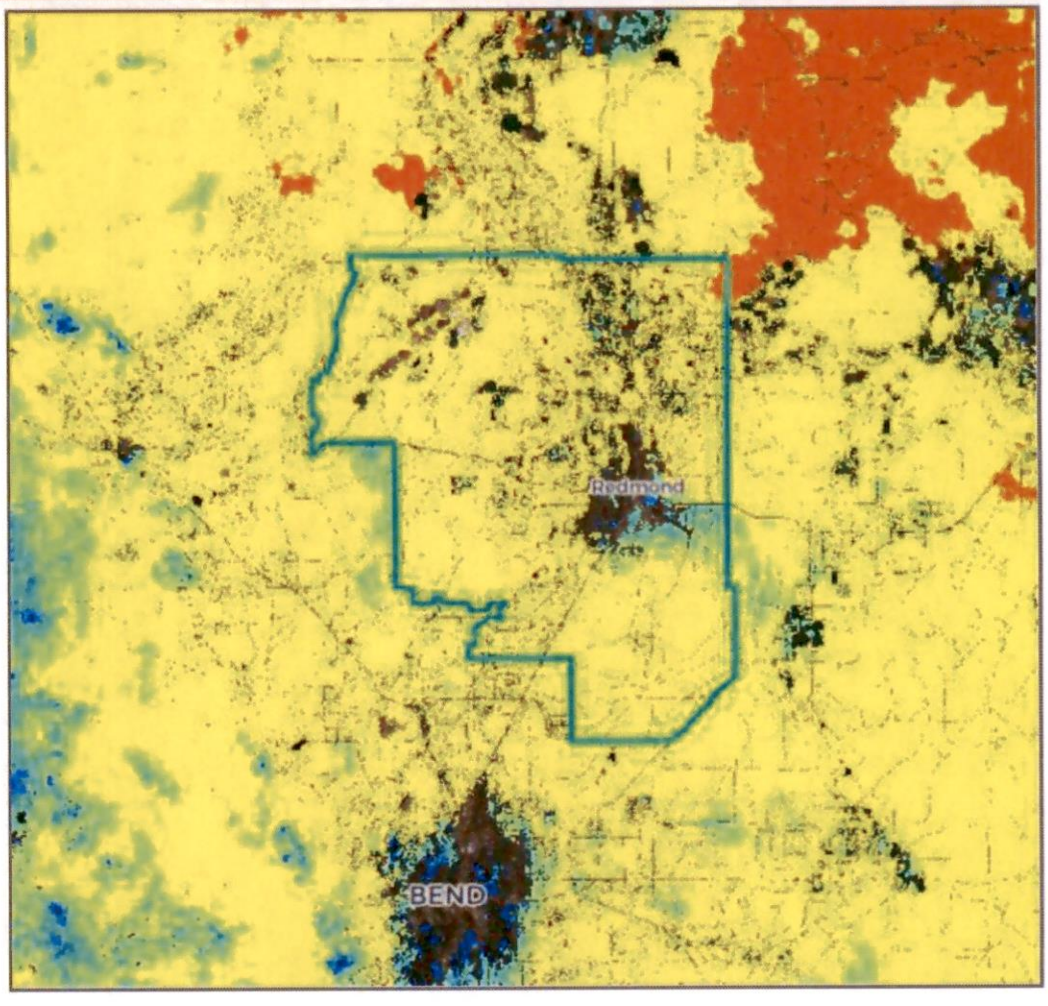
128,202 Acres: (200 Sq. Miles)

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BURN PROBABILITY

Burn probability shows the annual likelihood of a wildfire greater than 250 acres in size occuring, considering weather, topography, fire history, and fuels (vegetation). This estimate includes fire history from 1992 through recently disturbed fuels from large Oregon wildfires in notable years 2013, 2014, 2015, and 2017.

Only large wildfires over 250 acres in size are included because they are the most influential on the landscape and they can be simulated using computer software. Most fire occurrences are less than 250 acres (see fire history section). Although these smaller fires have a low impact on the broader landscape, they can have significant local impacts, especially in areas with human activity and infrastructure.



Burn probability	
Very High	Greater than 1 in 50 chance of a wildfire >250 acres in a single year (>96th percentile).
High-Very High High	Between 1 in 500 and 1 in 50 chance of a wildfire >250 acres in a single year (29th to 96th percentile).
Moderate-High Moderate	Between 1 in 5,000 and 1 in 500 chance of a wildfire >250 acres in a single year (11th to 29th percentile).
Low-Moderate Low	Less than approximately 1 in 5,000 chance of a wildfire >250 acres in a single year (up to the 11th percentile).
Non-burnable	This area contains non-burnable fuel types such as water, urban, agriculture, barren rock, etc.

Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)

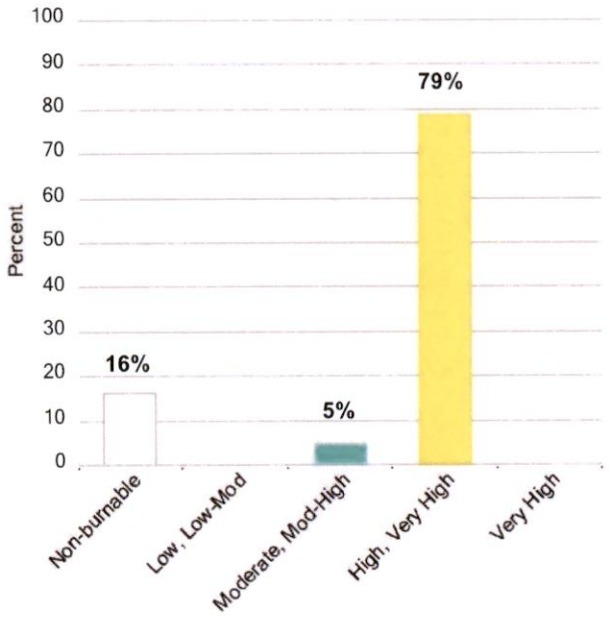
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This page contains additional information about burn probability, including a table of classes by ownership to determine the distribution of categories across ownerships, and a chart of overall percentages of classes across the area. The inset box displays sub-watershed summaries for landscape-scale prioritization.

Burn probability in Greater Redmond CWPP FINAL: estimated acres by ownership

Category	Total	Private	Local	State	BLM	USFS	USFWS	Other Fed	Tribal
Very High	0	0	0	0	0	0	0	0	0
High, Very High	100,673	48,297	107	2,085	50,172	12	0	0	0
Moderate, Mod-High	6,278	4,192	48	191	1,847	0	0	0	0
Low, Low-Mod	378	373	0	0	5	0	0	0	0
Non-Burnable	20,871	18,480	17	237	2,137	0	0	0	0
Total Area.	128,200	71,342	172	2,513	54,161	12	0	0	0

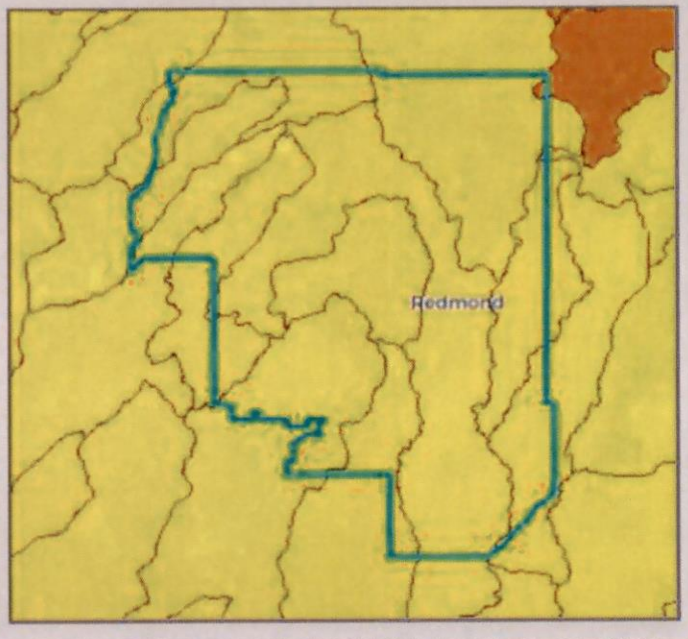
Burn probability in Greater Redmond CWPP FINAL *



Source: 2018 Pacific Northwest Quantitative Wildfire Risk Assessment, US Forest Service

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Burn probability in Greater Redmond CWPP FINAL: sub-watershed summary map. Burn probability is summarized at the subwatershed (6th field Hydrologic Unit Code, HUC12) level. Watershed summaries enable you to view the landscape context and identify and compare sub-watersheds for prioritization.



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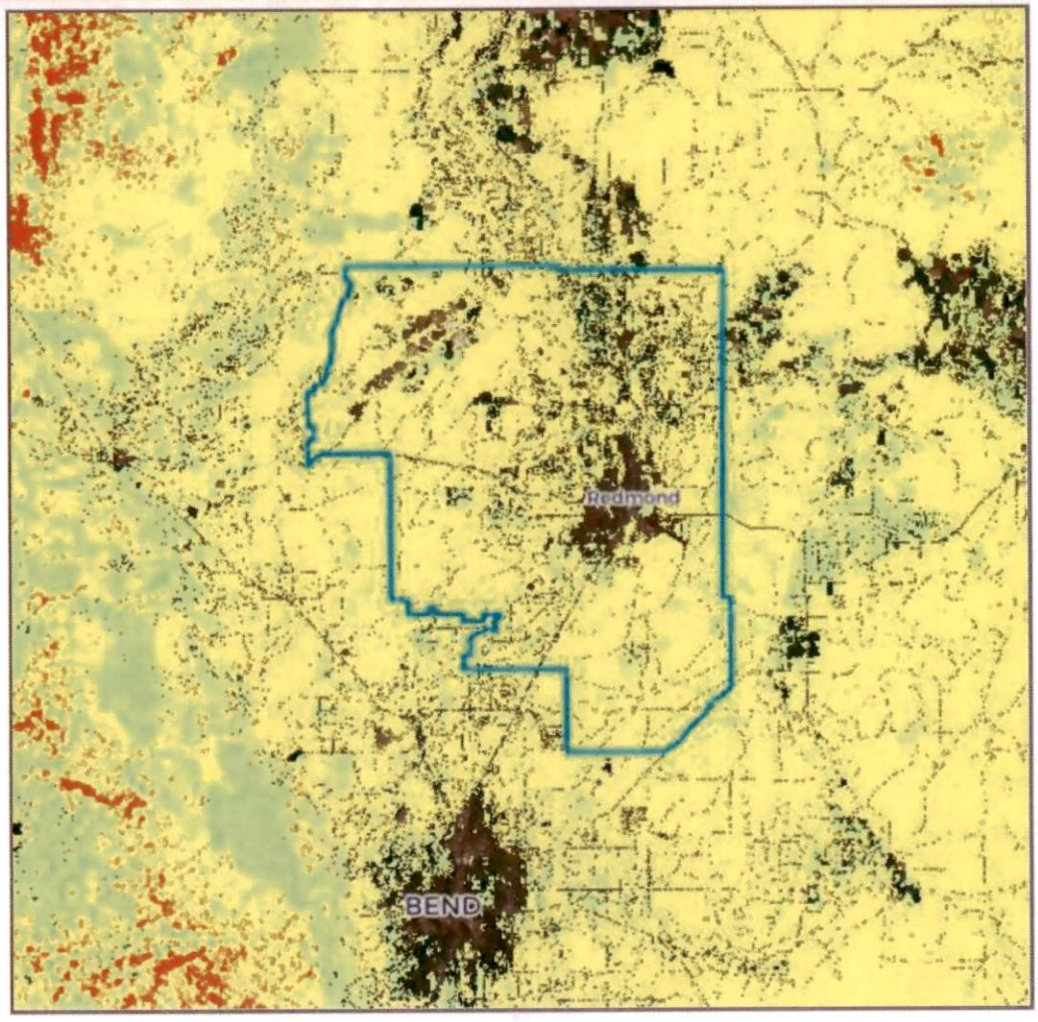
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FIRE INTENSITY - FLAME LENGTHS

Flame length is an indication of fire intensity, which is a primary factor to consider for gauging potential impacts to values at risk and for firefighter safety. It can also guide mitigation work to reduce the potential for catastrophic fires by reducing fire intensity and flame length.

Under normal weather conditions average flame lengths within your area are shown, and the associated table describes the expected fire behavior in each average flame length category.

Conditions vary widely with local topography, fuels, and local weather, especially local winds. In all areas, under warm, dry, windy, and drought conditions, expect higher likelihood of fire starts, higher fire intensities, more ember activity, a wildfire more difficult to control, and more severe impacts.



Average fire intensity - flame lengths under normal weather conditions	
> 11 foot	Fires may exhibit greater than 11-foot average flames with major fire movement, tree crowning, longer-range spotting and ember travel.
8-11 foot	Fires may exhibit 8-11 foot average flames with tree torching and increased ember travel.
4-8 foot	Fires may exhibit 4-8 foot average flames, and embers may travel moderate distances.
4 foot	Fires may exhibit 4 foot average flames.
Non-burnable	This area contains non-burnable fuel types such as water, urban, agriculture, barren rock, etc.

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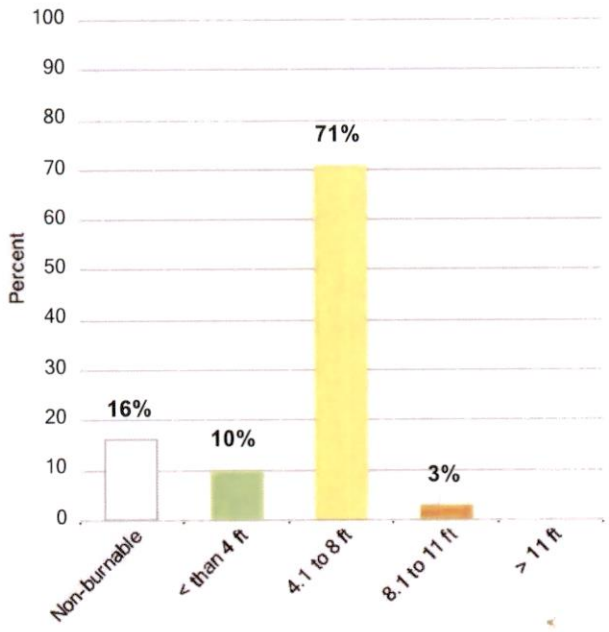
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This page contains additional information about fire intensity, including a table of classes by ownership to determine the distribution of categories across ownerships, and a chart of overall percentages of classes across the area. The inset box displays sub-watershed summaries for landscape-scale prioritization.

Greater Redmond CWPP FINAL average fire intensity - flame lengths estimated acres by ownership

Category	Total	Private	Local	State	BLM	USFS	USFWS	Other Fed	Tribal
> 11 ft	349	268	0	1	78	2	0	0	0
8 - 11 ft	3,325	1,990	0	68	1,267	0	0	0	0
4 - 8 ft	90,892	40,631	26	1,982	48,243	10	0	0	0
> 0 - 4 ft	12,762	9,974	128	224	2,436	0	0	0	0
Non-burnable	20,871	18,480	17	237	2,137	0	0	0	0
Total Area	128,199	71,343	171	2,512	54,161	12	0	0	0

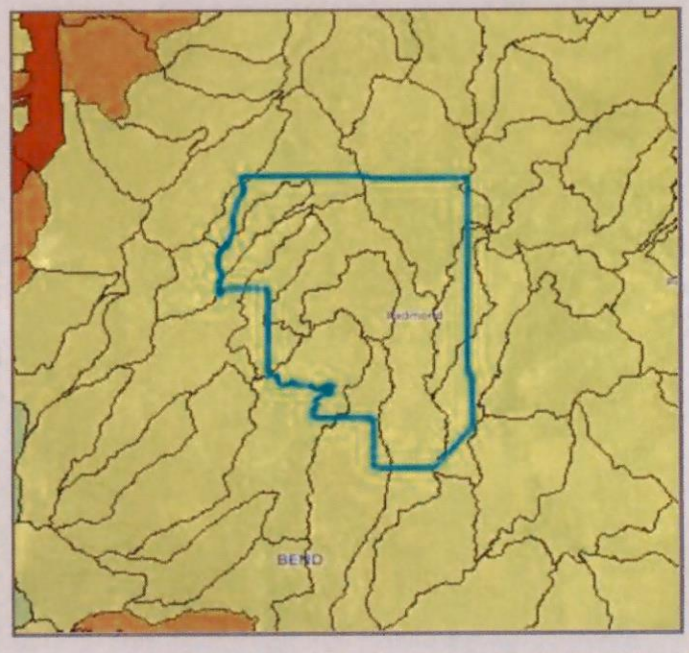
Fire intensity - flame length in Greater Redmond CWPP FINAL *



Source: 2018 Pacific Northwest Quantitative Wildfire Risk Assessment, US Forest Service

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Fire intensity in Greater Redmond CWPP FINAL: sub-watershed summary map. Fire intensity is summarized at the subwatershed (6th field Hydrologic Unit Code, HUC12) level. Watershed summaries enable you to view the landscape context and identify and compare sub-watersheds for prioritization.



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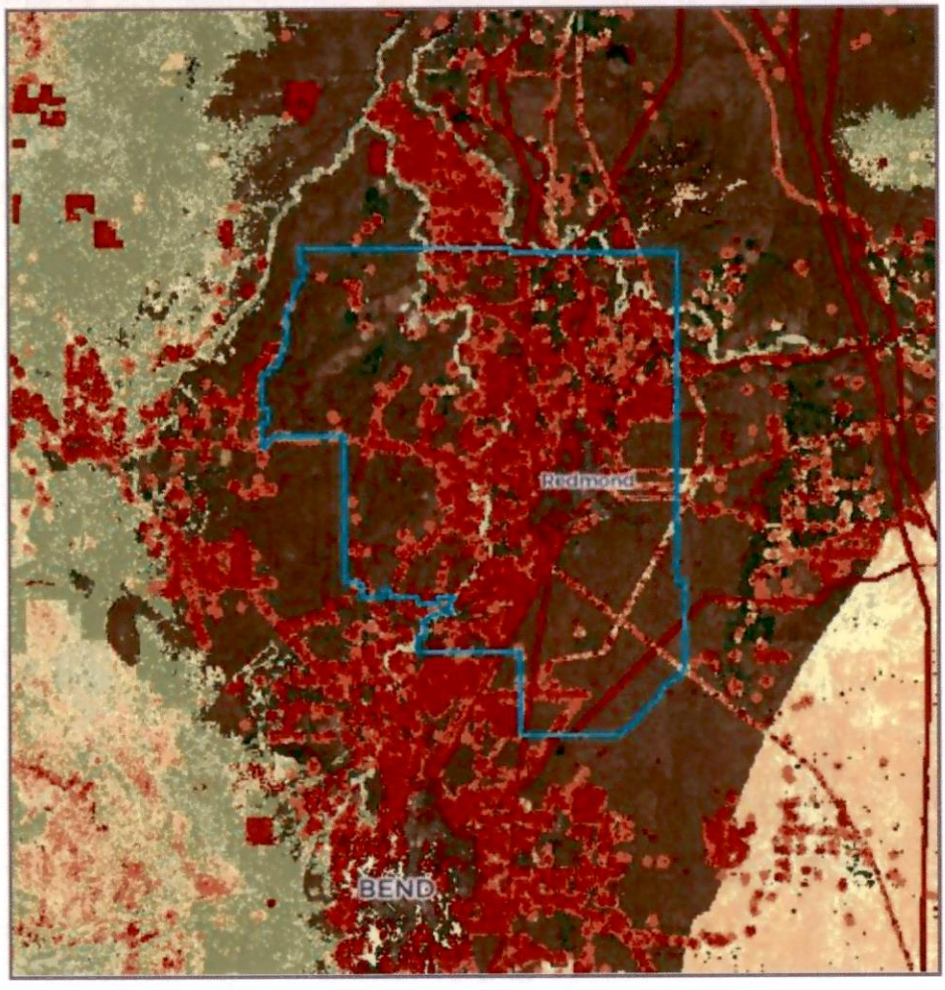
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OVERALL POTENTIAL IMPACT

Overall potential impact represents the exposure or consequence of wildfire on all mapped highly valued assets and resources combined, including critical infrastructure, developed recreation, housing density, seed orchards, sawmills, historic structures, timber, municipal watersheds, vegetation condition, and selected terrestrial and aquatic wildlife habitat.

The Potential Impact data layers characterize exposure and susceptibility only, and do not include the likelihood of an area burning. This differentiates the Potential Impact layers from Wildfire Risk layers, which account for the burn probability in the risk rating.

The data values reflect a range of impacts from a very high negative consequence, where wildfire is detrimental (e.g., high exposure to structures, infrastructure, or sensitive habitat), to a positive impact of wildfire, where wildfire will produce an overall benefit (e.g., improving forest health or wildlife habitat).



Overall potential impact (if a wildfire were to occur)	
Very High	Overall potential impact is very highly negative (top 5% of values).
High	Overall potential impact is highly negative (80-95th percentile).
Moderate	Overall potential impact is moderately negative (50-80th percentile).
Low	Overall potential impact is slightly negative (30-50th percentile).
Low Benefit	Overall potential impact is slightly beneficial at low flame lengths (15-30th percentile).
Benefit	Overall potential impact is slightly beneficial, with a cumulative positive impact of fire (0-15th percentile).
No Data (blank)	There are no highly valued resources or assets mapped in the area or it is non-burnable (urban, agriculture, barren,etc).

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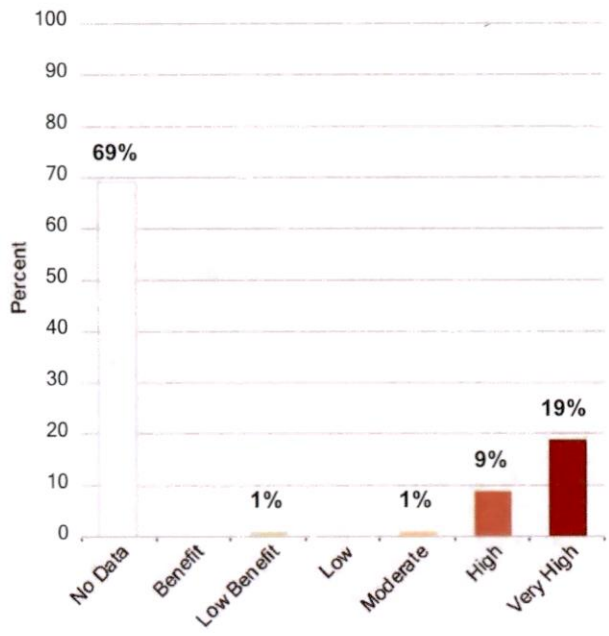
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This page contains additional information about overall potential impact, including a table of classes by ownership to determine the distribution of categories across ownerships, and a chart of overall percentages of classes across the area. The inset box displays sub-watershed summaries for landscape-scale prioritization.

Greater Redmond CWPP FINAL overall potential impact estimated acres by ownership

Category	Total	Private	Local	State	BLM	USFS	USFWS	Other Fed	Tribal
Very High	24,582	17,370	20	524	6,668	0	0	0	0
High	11,801	6,886	2	107	4,806	0	0	0	0
Moderate	1,393	844	2	25	522	0	0	0	0
Low	191	110	0	8	73	0	0	0	0
Low Benefit	1,254	819	1	152	282	0	0	0	0
Benefit	405	252	2	68	83	0	0	0	0
No Data	88,572	45,062	144	1,629	41,725	12	0	0	0
Total Area	128,198	71,343	171	2,513	54,159	12	0	0	0

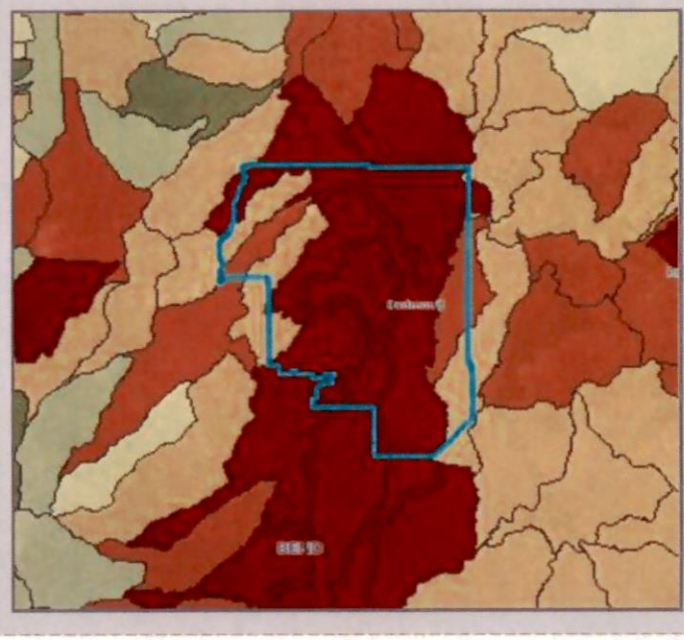
Overall potential impact in Greater Redmond CWPP FINAL *



Source: 2018 Pacific Northwest Quantitative Wildfire Risk Assessment, US Forest Service

** Values may add up to over 100% due to rounding precision*

Overall potential impact in Greater Redmond CWPP FINAL: sub-watershed summary map. Overall potential impact is summarized at the sub-watershed (6th field Hydrologic Unit Code, HUC12) level. Watershed summaries enable you to view the landscape context and identify and compare sub-watersheds for prioritization.

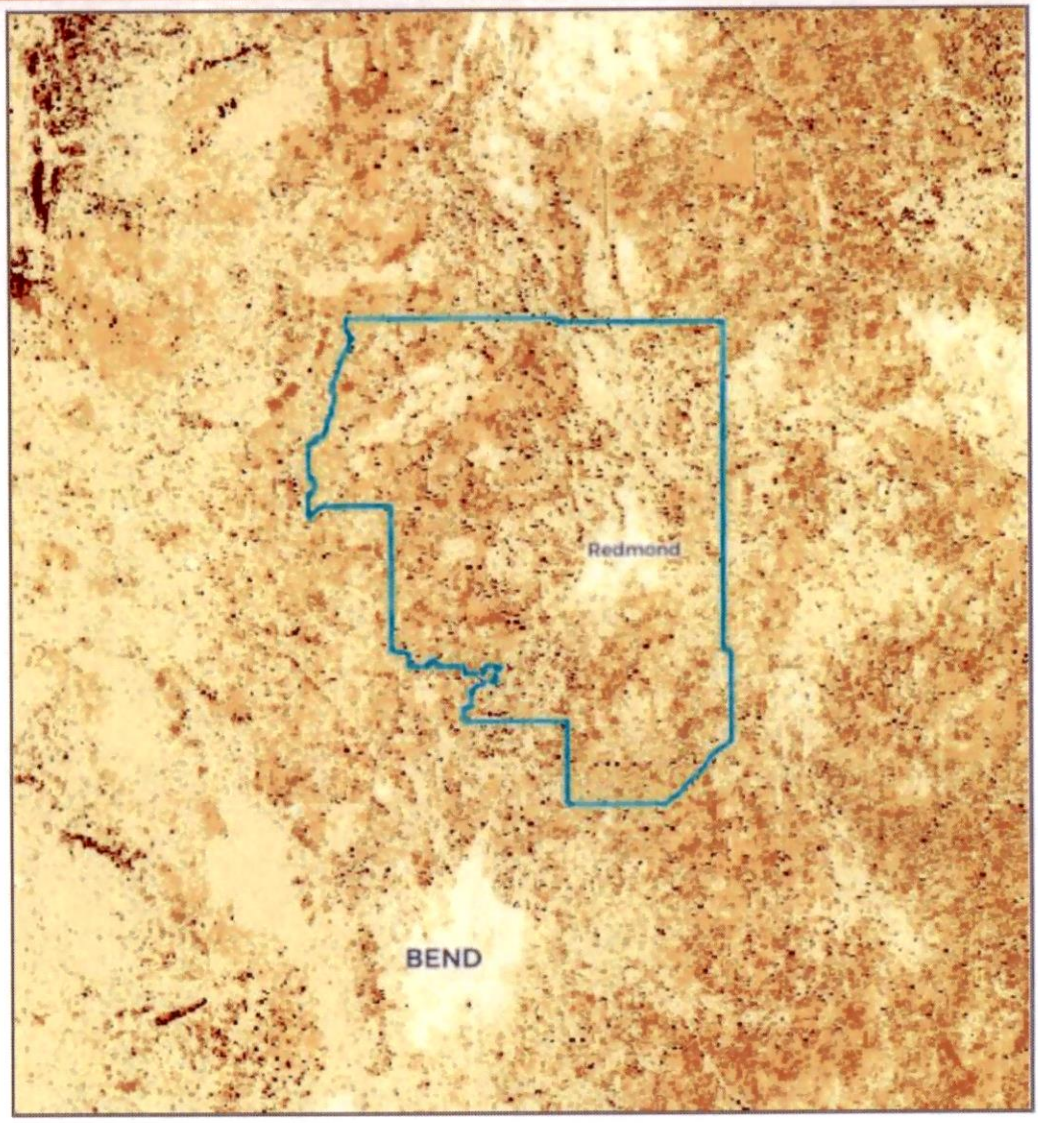


HAZARD TO POTENTIAL STRUCTURES

Hazard to potential structures depicts the hazard to a hypothetical structure (not necessarily an existing structure) if a wildfire were to occur. Hazard to potential structures differs from overall estimates of wildfire impact or risk, as those estimates only consider where existing structures are currently located.

Community planners can use this information when planning development outside of existing developed, urban or WUI areas. This data provides model-based consideration of wildfire hazard when developing Fire Adapted Communities in Oregon.

As with the other data layers, this layer characterizes the fire environment only and does not consider other important factors in determining structural fire risk such as building construction materials and vegetation within close proximity of a structure.



Hazard to potential structures	
Very High	Potential hazard is very high (top 5 percent).
High	Potential hazard is high (80th to 95th percentile).
Moderate	Potential hazard is moderate (50th to 80th percentile).
Low	Potential hazard is low (up to the 50th percentile).
Non-Burnable	Fuel in the area is largely non-burnable or very sparse.

Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)

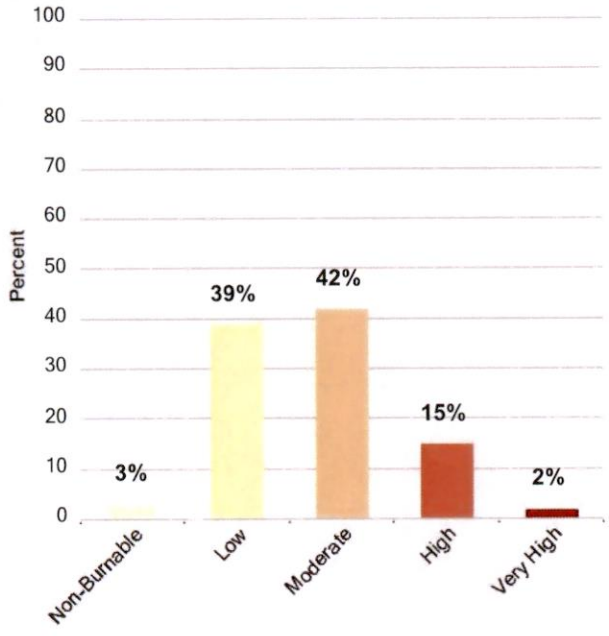
Generated: April 20, 2022

This page contains additional information about hazard to potential structures, including a table of classes by ownership to determine the distribution of categories across ownerships, and a chart of overall percentages of classes across the area. The inset box displays sub-watershed summaries for landscape-scale prioritization.

Hazard to potential structures in Greater Redmond CWPP FINAL: estimated acres by ownership

Category	Total	Private	Local	State	BLM	USFS	USFWS	Other Fed	Tribal
Very High	2,300	1,362	0	26	910	2	0	0	0
High	19,405	9,352	2	379	9,671	1	0	0	0
Moderate	53,408	22,289	13	1,143	29,954	9	0	0	0
Low	49,501	34,824	157	957	13,563	0	0	0	0
Non-Burnable	3,585	3,515	0	7	63	0	0	0	0
Total Area	128,199	71,342	172	2,512	54,161	12	0	0	0

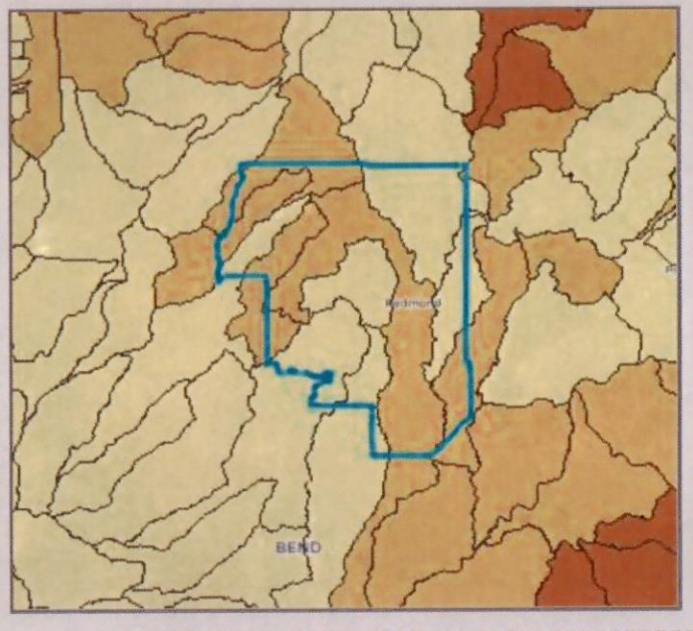
Hazard to potential structures in Greater Redmond CWPP FINAL *



Source: 2018 Pacific Northwest Quantitative Wildfire Risk Assessment, US Forest Service

** Values may add up to over 100% due to rounding precision*

Hazard to potential structures in Greater Redmond CWPP FINAL: sub-watershed summary map. Hazard to potential structures is summarized at the subwatershed (6th field Hydrologic Unit Code, HUC12) level. Watershed summaries enable you to view the landscape context and identify and compare sub-watersheds for prioritization.

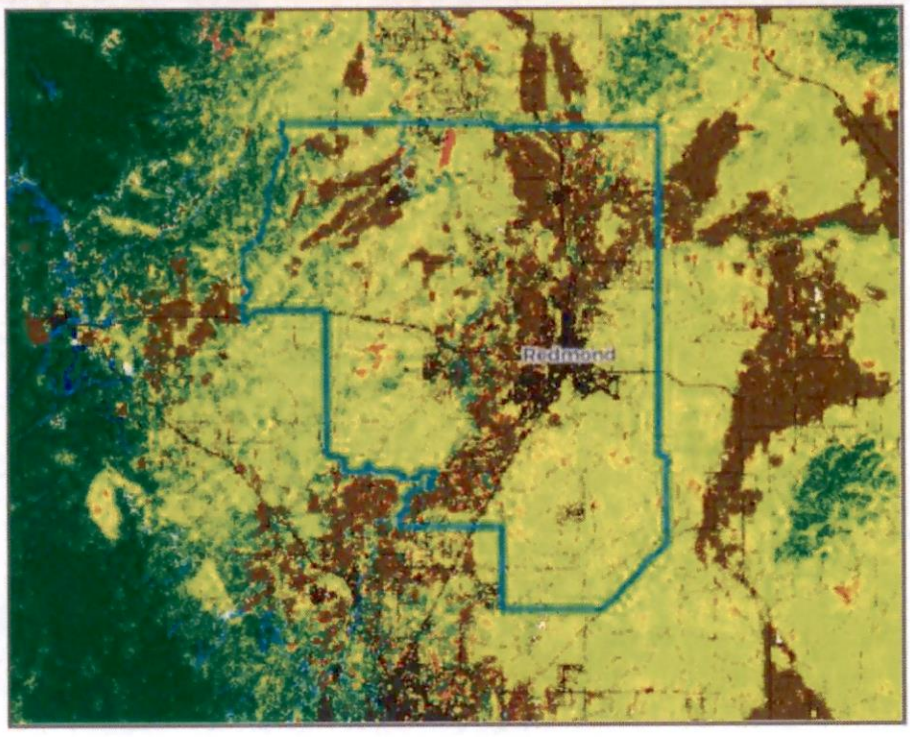


EXISTING VEGETATION TYPE

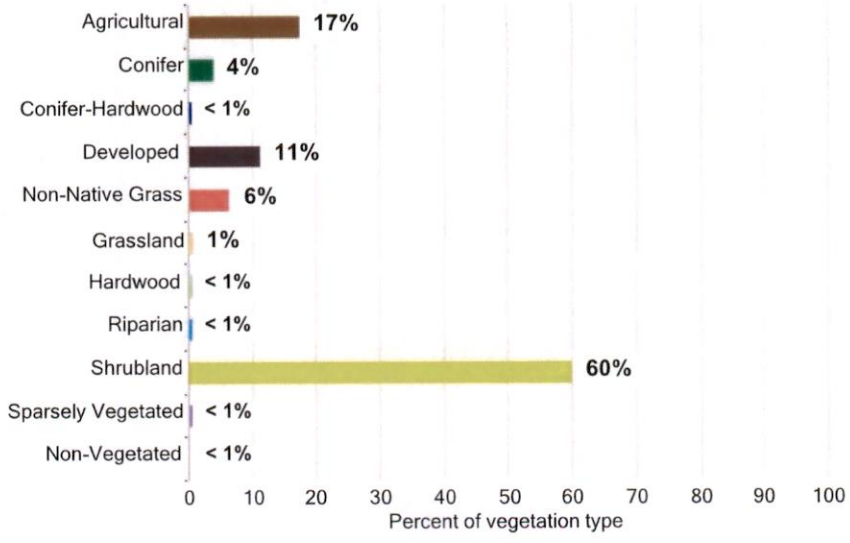
Vegetation is an important influence on potential wildfire behavior. The dominant vegetation type helps us understand the corresponding historical fire regime, a designation of fire frequency and severity. Fire frequency, or burn probability, suggests how often wildfire occurs (see Burn probability data layer). Fire severity tells us how much impact wildfires are likely to have on the vegetation and other elements of an ecosystem (see Potential impact to forest vegetation data layer). The living and dead vegetation below forest canopies (shrubs, grasses, leaf litter, dead tree snags, etc.) also strongly influence fire behavior and impacts in a location (see Fuel models).

Higher frequency fire areas generally have lower severities. Vegetation is continually or often thinned by fire and the remaining vegetation and other ecosystem elements can be considered adaptive or resilient to fire. Examples include Ponderosa pine forests and oak woodlands.

Lower frequency fire regimes experience less fire, but generally have higher severities, with vegetation and other ecosystem elements which can be considered sensitive. Examples include coastal forests, subalpine forests and many stream headwaters and riparian areas.



Vegetation Types in Greater Redmond CWPP FINAL



Greater Redmond CWPP FINAL vegetation type

Category	Description	Acres	%*
Non-vegetated or recently disturbed	Non-vegetated	153	< 1
Agricultural	Agricultural	22,340	17
Conifer	Conifer	4,916	4
Conifer-Hardwood	Conifer-Hardwood	1	< 1
Developed	Developed	14,310	11
Exotic Herbaceous	Non-Native Grass	8,106	6
Grassland	Grassland	762	< 1
Hardwood	Hardwood	314	< 1
Riparian	Riparian	533	< 1
Shrubland	Shrubland	76,759	60
Sparsely Vegetated	Sparsely Vegetated	4	< 1

Existing Vegetation Type Data Dictionary https://www.landfire.gov/evt.php
Source: LANDFIRE https://www.landfire.gov

Resource:
US Forest Service Fire Regime Table
https://www.fs.fed.us/database/feis/fire_regime_table/fire_regime_table.html#PacificNorthwest

** Values may add up to over 100% due to rounding precision*

Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)

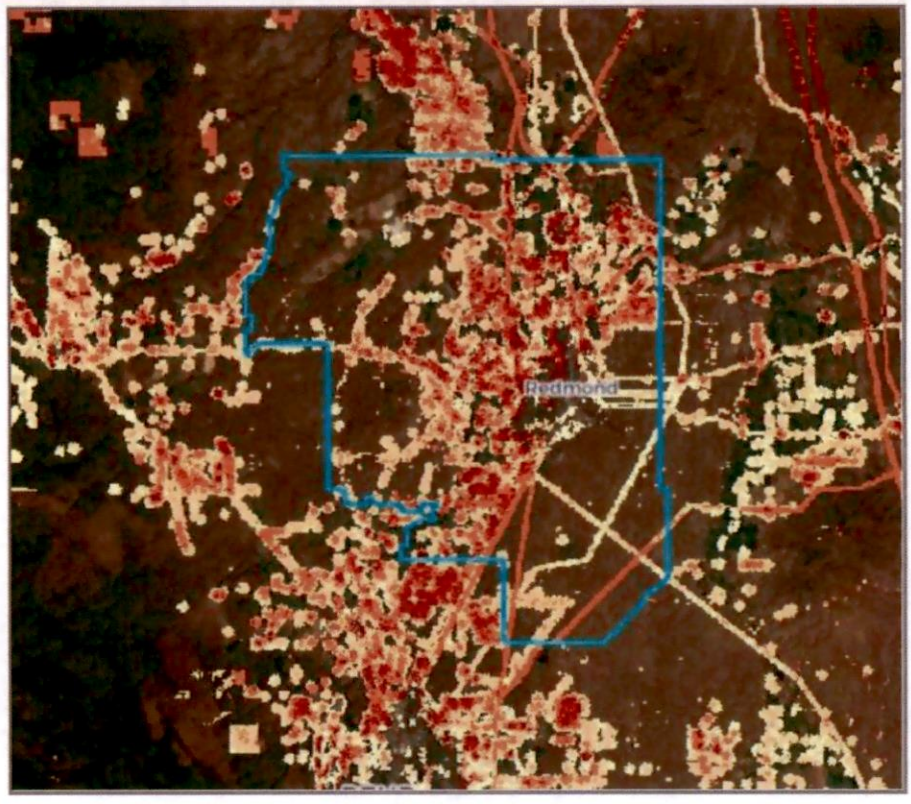
Generated: April 20, 2022

WILDFIRE RISK TO ASSETS

Wildfire risk combines both the likelihood of a wildfire (or Burn probability) and the expected effects of a wildfire on highly valued resources and assets. See the description of Overall wildfire risk for more details.

Wildfire risk to assets maps wildfire risk only in places with the following assets: critical infrastructure, developed recreation, housing unit density, seed orchards, sawmills, and historic structures. Note that these resources and assets were mapped at a broad scale across all of Oregon and Washington, and maps contain errors and omissions, especially at fine scales.

The values in the maps and charts reflect a range of negative impacts from low to very high. Positive benefits of wildfire are not mapped in this layer, assuming that any impact of wildfire to human development is negative.



Wildfire Risk to Assets in Greater Redmond CWPP FINAL

Category	Description	Acres	%*
Very High	Wildfire risk is very highly negative to all combined mapped assets (top 5%).	4,516	4
High	Wildfire risk is highly negative (80-95th percentile).	13,043	10
Moderate	Wildfire risk is moderately negative (50-80th percentile).	18,170	14
Low	Wildfire risk is slightly negative (0-50th percentile).	2,103	2
No Data	There are no highly valued resources or assets mapped in the area, or it is considered non-burnable.	90,365	70

Source: 2018 Pacific Northwest Quantitative Wildfire Risk Assessment, US Forest Service

** Values may add up to over 100% due to rounding precision*

Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)

Generated: April 20, 2022

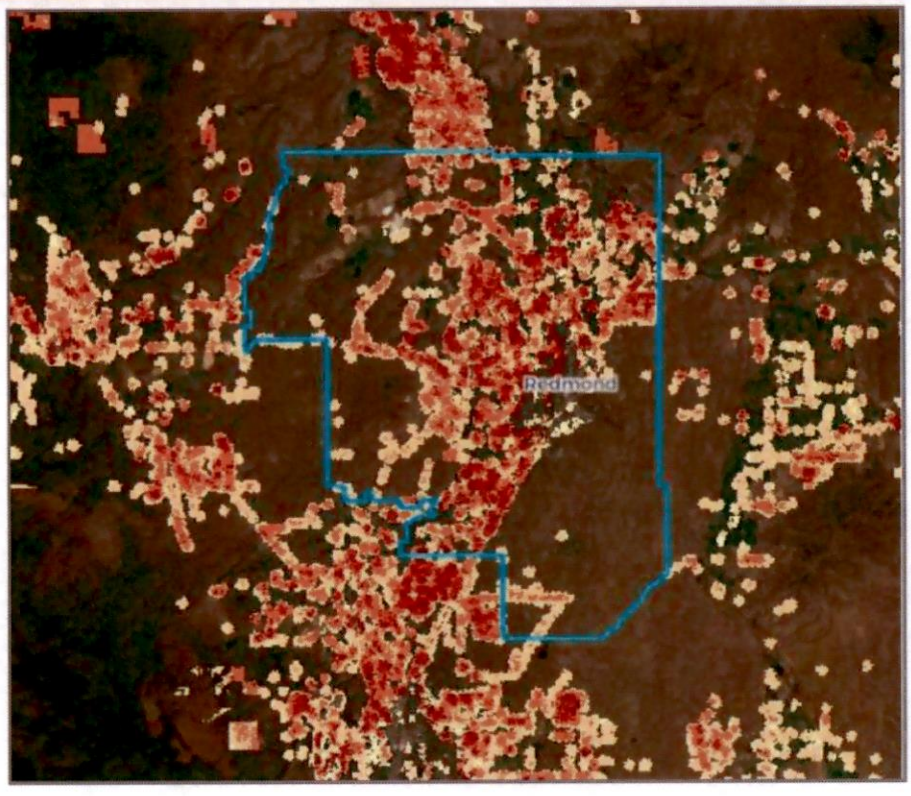
WILDFIRE RISK TO PEOPLE AND PROPERTY

Wildfire risk combines both the likelihood of a wildfire (or burn probability) and the expected effects of a wildfire on highly valued resources and assets. See the description of overall wildfire risk for more details.

Wildfire risk to people and property includes only housing unit density as mapped in the Where people live layer and US Forest Service private inholdings.

Note that these resources and assets were mapped at a broad scale across all of Oregon and Washington, and maps contain errors and omissions, especially at fine scales.

The values in the maps and charts reflect a range of negative impacts from low to very high. Positive benefits of wildfire are not mapped in this layer, assuming that any impacts of wildfire to human development is a negative impact.



Wildfire Risk to People and Property in Greater Redmond CWPP FINAL

Category	Description	Acres	%*
Very High	Wildfire risk is very highly negative to people and property (top 5%).	5,552	4
High	Wildfire risk is highly negative (80-95th percentile).	12,789	10
Moderate	Wildfire risk is moderately negative (50-80 percentile).	13,514	11
Low	Wildfire risk is slightly negative (0-50 percentile).	319	< 1
No Data	There are no highly valued resources or assets mapped in the area, or it is considered non-burnable.	96,024	75

Source: 2018 Pacific Northwest Quantitative Wildfire Risk Assessment, US Forest Service

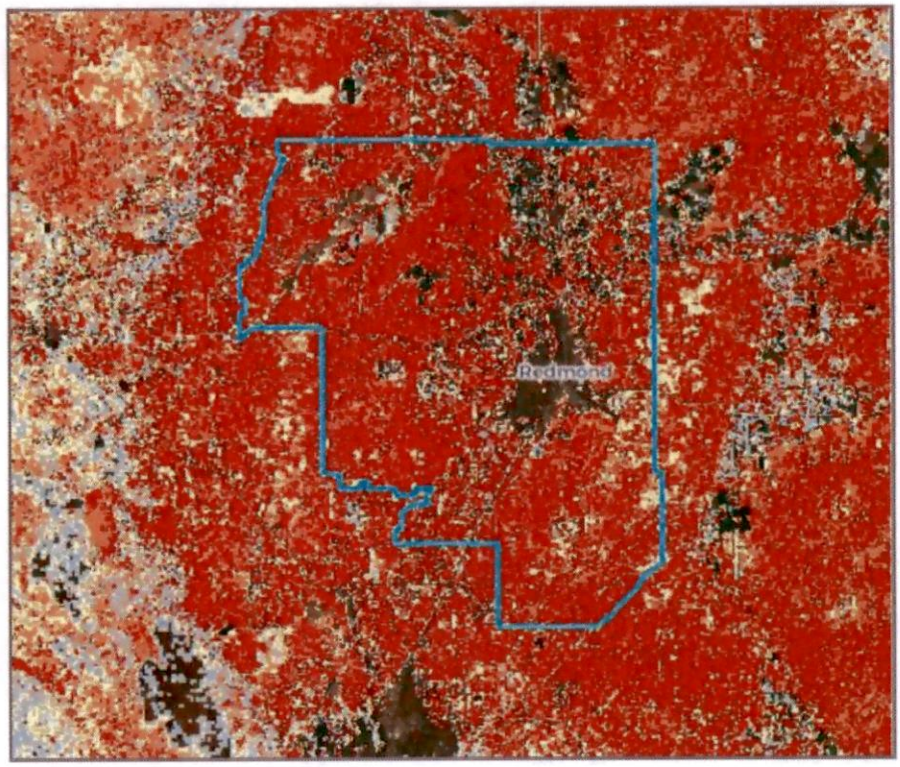
** Values may add up to over 100% due to rounding precision*

PROBABILITY OF EXCEEDING 4 FOOT FLAME LENGTHS

Flame length is an indication of fire intensity, which is a primary factor to consider for firefighter safety and for gauging potential impacts to values at risk. Fires with greater flame lengths are more intense and difficult to control. At higher flame lengths, firefighters cannot directly approach. As flame lengths increase, tree torching and spotting is expected and ember travel is increased.

Fires with greater than 4' flames are too intense for firefighters to work at the front of the flame using hand tools, and heavier equipment such as bulldozers may be necessary.

Using this layer to help target locations of higher flame length potential, a local assessment might reveal opportunity to reduce fire intensity as a goal of fuels treatment projects by using managed fire and/or other active management activities. Values are expressed as a percent likelihood. These probabilities do not take into account the likelihood of burning (see Burn probability).



Greater Redmond CWPP FINAL probability of exceeding 4' flames

Category	Description	Acres	%*
75-100%	If a fire occurs, there is a very high (>75%) chance that flame lengths will be greater than 4'.	66,289	52
50-75%	If a fire occurs, there is a high (50-75%) chance that flame lengths will be greater than 4'.	22,222	17
25-50%	If a fire occurs, there is a moderate (25-50%) chance that flame lengths will be greater than 4'.	11,027	9
0-25%	If a fire occurs, there is a low (<25%) chance that flame lengths will be greater than 4'.	7,005	5
0%	This area contains non-burnable fuel types such as water, urban, agriculture, barren rock, etc.	21,653	17

Source: 2018 Pacific Northwest Quantitative Wildfire Risk Assessment, US Forest Service

** Values may add up to over 100% due to rounding precision*

Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)

Generated: April 20, 2022

PROBABILITY OF EXCEEDING 8 FOOT FLAME LENGTHS

Flame length is an indication of fire intensity, which is a primary factor to consider for firefighter safety and for gauging potential impacts to values at risk. Fires with greater flame lengths are very intense and are expected to be highly difficult to control -- too intense for firefighters to work at the front of the flame, and they can severely impact values at risk. Tree torching and spotting is expected and ember travel is increased.

Fires with >8' flame lengths may be very difficult to control with little ability to work at the front of the flame, and greater risk of torching, crowning and spotting.

Using this layer to help target locations of higher flame length potential, a local assessment might reveal opportunity to reduce fire intensity as a goal of fuels treatment projects by using managed fire and/or other active management activities.

Values are expressed as a percent likelihood. These probabilities do not take into account the likelihood of an area burning.



Greater Redmond CWPP FINAL probability of exceeding 8' flames

Category	Description	Acres	%*
75-100%	If a fire occurs, there is a very high (>75%) chance that flame lengths will be greater than 8'.	135	< 1
50-75%	If a fire occurs, there is a high (50-75%) chance that flame lengths will be greater than 8'.	2,094	2
25-50%	If a fire occurs, there is a moderate (25-50%) chance that flame lengths will be greater than 8'.	4,828	4
0-25%	If a fire occurs, there is a low (<25%) chance that flame lengths will be greater than 8'.	87,176	68
0%	This area contains non-burnable fuel types such as water, urban, agriculture, barren rock, glacial areas, etc.	33,965	26

Source: 2018 Pacific Northwest Quantitative Wildfire Risk Assessment, US Forest Service

** Values may add up to over 100% due to rounding precision*

Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)

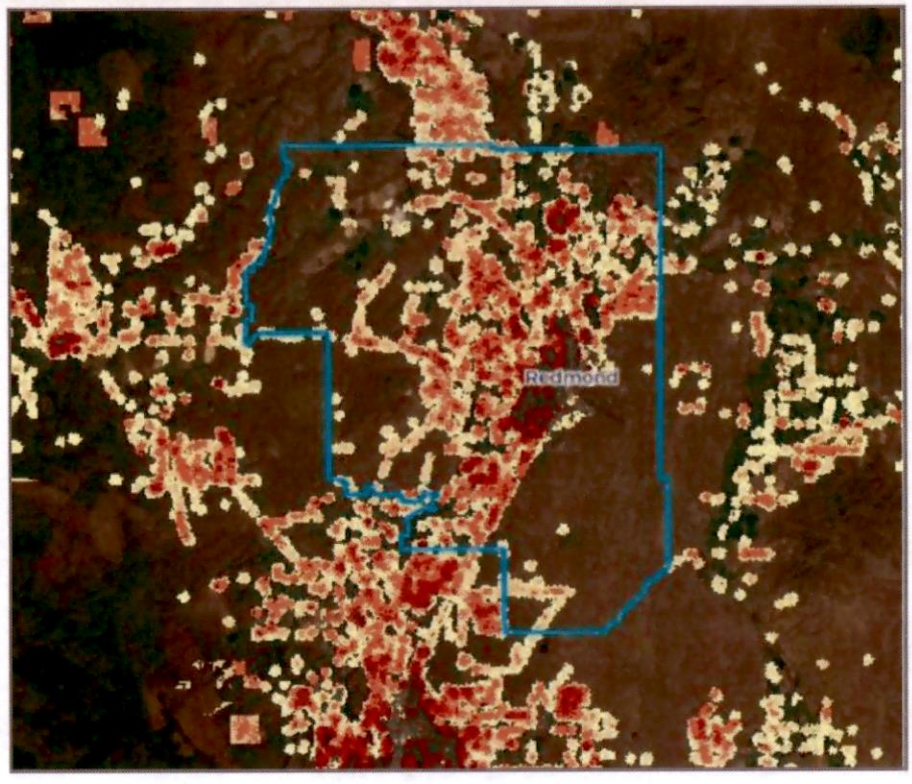
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POTENTIAL IMPACT TO PEOPLE AND PROPERTY

Potential impact to people and property represents the exposure or consequence of wildfire on mapped highly valued assets including housing unit density and USFS private inholdings.

The Potential Impact data layers characterize exposure and susceptibility only, and do not include the likelihood of an area burning. This differentiates the Potential Impact layers from Wildfire Risk layers, which account for the burn probability in the risk rating.

The data values reflect a range of impacts from very high to low negative consequences. Positive benefits of wildfire are not mapped in this layer, assuming that any impact of wildfire to human development is negative.



Greater Redmond CWPP FINAL potential impact to people and property, if a wildfire were to occur.

Category	Description	Acres	%*
Very High	Potential impact is very highly negative to people and property (top 5%).	3,086	2
High	Potential impact is highly negative (80-95th percentile).	10,717	8
Moderate	Potential impact is moderately negative (50-80th percentile).	12,153	9
Low	Potential impact is slightly negative (0-50th percentile).	6,217	5
No Data	There is no people and property mapped in the area or it is considered non-burnable (urban, agriculture, barren,etc).	96,024	75

Source: 2018 Pacific Northwest Quantitative Wildfire Risk Assessment, US Forest Service

** Values may add up to over 100% due to rounding precision*

Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)

Generated: April 20, 2022

POTENTIAL IMPACT TO INFRASTRUCTURE

Potential impact to infrastructure represents the exposure or consequence of wildfire on mapped highly valued assets including critical infrastructure, developed recreation, housing unit density, seed orchards, sawmills, and historic structures.

The Potential Impact data layers characterize exposure and susceptibility only, and do not include the likelihood of an area burning. This differentiates the Potential Impact layers from Wildfire Risk layers, which account for the burn probability in the risk rating.

The resulting values reflect a range of impacts from a very high to low negative consequences. Positive benefits of wildfire are not mapped in this layer, assuming that any impact of wildfire to infrastructure is negative.



Greater Redmond CWPP FINAL potential impact to infrastructure, if a wildfire were to occur.

Category	Description	Acres	%*
Very High	Potential impact is very highly negative (top 5%).	542	< 1
High	Potential impact is highly negative (80-95th percentile).	2,030	2
Moderate	Potential impact is moderately negative (50-80th percentile).	2,918	2
Low	Potential impact is slightly negative (0-50th percentile).	3,942	3
No Data	There is no infrastructure mapped in the area or it is considered non-burnable (urban, agriculture, barren,etc).	118,765	93

Source: 2018 Pacific Northwest Quantitative Wildfire Risk Assessment, US Forest Service

** Values may add up to over 100% due to rounding precision*

POTENTIAL IMPACT TO WILDLIFE

Potential impact to wildlife represents the exposure or consequence of wildfire on mapped wildlife habitat for the following species: northern spotted owl, marbled murrelet, sage grouse, chinook salmon, coho salmon, steelhead trout, bull trout, redband trout, coastal cutthroat, and Lahontan cutthroat trout.

The Potential Impact data layers characterize exposure and susceptibility only, and do not include the likelihood of an area burning. This differentiates the Potential Impact layers from Wildfire Risk layers, which account for the burn probability in the risk rating.

The data values reflect a range of impacts from a very high negative consequences, where wildfire is detrimental (for example, sensitive habitat with fire-intolerant species), to a positive impacts of wildfire, where wildfire will produce an overall benefit (for example, improving wildlife habitat for fire-dependent species).



Greater Redmond CWPP FINAL potential impact to wildlife habitat, if a wildfire were to occur.

Category	Description	Acres	%*
Very High	Potential impact is very highly negative (top 5%).	0	0
High	Potential impact is highly negative (80-95th percentile).	21	< 1
Moderate	Potential impact is moderately negative (50-80th percentile).	155	< 1
Low	Potential impact is slightly negative (17-50th percentile).	192	< 1
Low Benefit	Potential impact is slightly beneficial to wildlife at low flame lengths (8-17th percentile).	594	< 1
Benefit	Potential impact is beneficial, with a cumulative positive impact on wildlife habitat (0-8th percentile).	1,769	1
No Data	There is no wildlife habitat mapped in the area, or it is considered non-burnable (urban, agriculture, barren,etc).	125,468	98

Source: 2018 Pacific Northwest Quantitative Wildfire Risk Assessment, US Forest Service

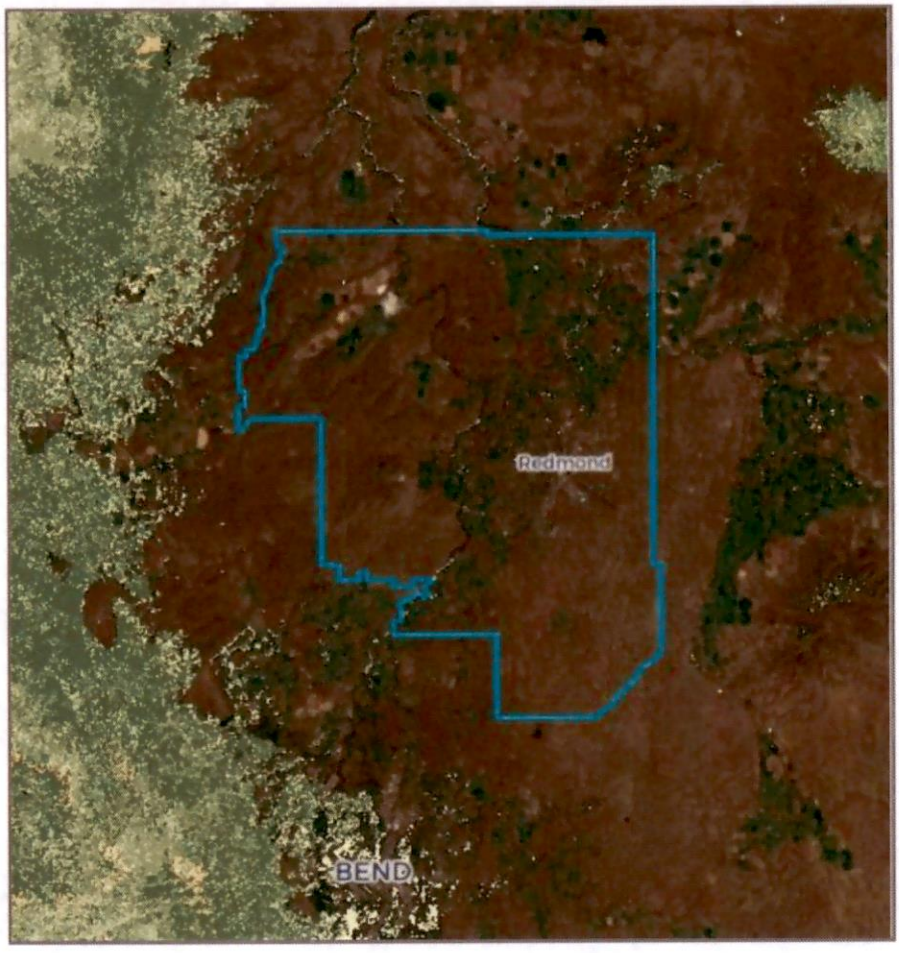
** Values may add up to over 100% due to rounding precision*

POTENTIAL IMPACT TO FOREST VEGETATION

Potential impact to forest vegetation represents the exposure or consequence of wildfire on mapped forest vegetation. This layer provides information about departure of current vegetation condition relative to historical vegetation and reference conditions, and considers the natural role of fire to specific fire regime groups.

The Potential Impact data layers characterize exposure and susceptibility only, and do not include the likelihood of an area burning. This differentiates the Potential Impact layers from Wildfire Risk layers, which account for the burn probability in the risk rating.

The data values reflect a range of impacts from a very high negative rating, where wildfire will move the landscape further from historical or desired conditions, to positive, where wildfire will bring the landscape closer to historical or desired conditions. Note that wildfire impacts on rangeland and grassland vegetation were not simulated due to a lack of spatial data and adequate characterization of wildfire impacts on vegetation outside of forested communities.



Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)

Generated: April 20, 2022

Greater Redmond CWPP FINAL potential impact to forest vegetation, if a wildfire were to occur.

Category	Description	Acres	%*
Very High	Potential impact is very highly negative (top 3%). Fire has a highly detrimental effect on the landscape, moving the landscape further from historical/desired conditions.	130	< 1
High	Potential impact is highly negative (87-97th percentile). Fire has a detrimental effect on the landscape, moving the landscape further from historical/desired conditions.	65	< 1
Moderate	Potential impact is moderately negative (52-87th percentile). Fire will move the landscape further from historical/desired conditions.	4	< 1
Low	Potential impact is slightly negative (19-52th percentile). Fire will move the landscape further from historical/desired conditions.	10	< 1
Low Benefit	Potential impact is slightly beneficial to forest vegetation at low flame lengths, potentially producing a "fuel treatment" effect (0.6-19th percentile).	0	0
Benefit	Potential impact is beneficial, with a cumulative positive impact on forest vegetation (0-0.6th percentile). There is potential for fire to bring the landscape closer to	0	0
No Data	There is no vegetation mapped in the area, or it is considered non-burnable (urban, agriculture, barren,etc).	127,988	100

Source: 2018 Pacific Northwest Quantitative Wildfire Risk Assessment, US Forest Service

** Values may add up to over 100% due to rounding precision*

FIRE REGIME GROUPS

A fire regime is a description of the general characteristics of a fire area, including frequency, intensity, size, pattern, season, and severity of effects of wildfire in an ecosystem over an extended period of time, dependent on topography, weather, vegetation, and fire history. How intensely a fire burns determines the effects and severity. Overall impacts of fires will depend on the historical fire regime and the influence of changes to that regime through changes in forest structure, composition, and processes.

Existing vegetation has departed from historical conditions in some areas, which affects the current fire environment. This departure depicts relative degrees of alterations of key ecosystem components such as species composition, structural stage, stand age, canopy closure, and fuel loadings. The potential impact to forest vegetation layer (and other potential impact layers) shows the areas where wildfire will move the landscape further from historical conditions, and where there are opportunities to use managed fire, active management, or other fuel treatments to bring the landscape closer to historical conditions.

Historically, higher fire frequency areas have lower fire severities. Vegetation in these areas is considered adaptive or resilient to fire due to this frequency. Examples include Ponderosa pine forests and dry mixed conifer forests. Lower frequency fire regime areas generally have higher severities, with vegetation and ecosystem elements usually considered sensitive due to their lack of exposure to fire. Examples include coastal forests, subalpine forests, alpine meadows, and many stream headwaters and riparian areas (see Existing vegetation).

Fire frequency suggests how often wildfire occurs (see Burn probability and Fire history data layers). Fire severity tells us how much impact wildfires are likely to have on the vegetation and other elements of an ecosystem (see Potential Impact data layers. The living and dead vegetation below forest canopies (shrubs, grasses, leaf litter, dead tree snags, etc.) also influences fire behavior (intensity and spread) and severity (impacts or effects). See Fuel models and Flame length data layers).

The national classification of fire regime groups commonly used includes five groups of fire frequency and severity pairs: I - frequent fire (0-35 years), low severity; II - frequent fire (0-35 years), stand replacement severity; III - 35-100+ years, mixed severity; IV - 35-100+ years, stand replacement severity; and V - 200+ years, stand replacement severity. Oregon has all of these historical fire regimes.

Maps of fire regime groups from LANDFIRE can be found here:
https://www.landfire.gov/geoareasmaps/2012/CONUS_FRG_c12.pdf.

Find more information about fire regime groups here: https://www.landfire.gov/frg.php.

Fire Regime table for major vegetation areas (in the Pacific Northwest):
https://www.fs.fed.us/database/feis/fire_regime_table/fire_regime_table.html#PacificNorthwest

Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)

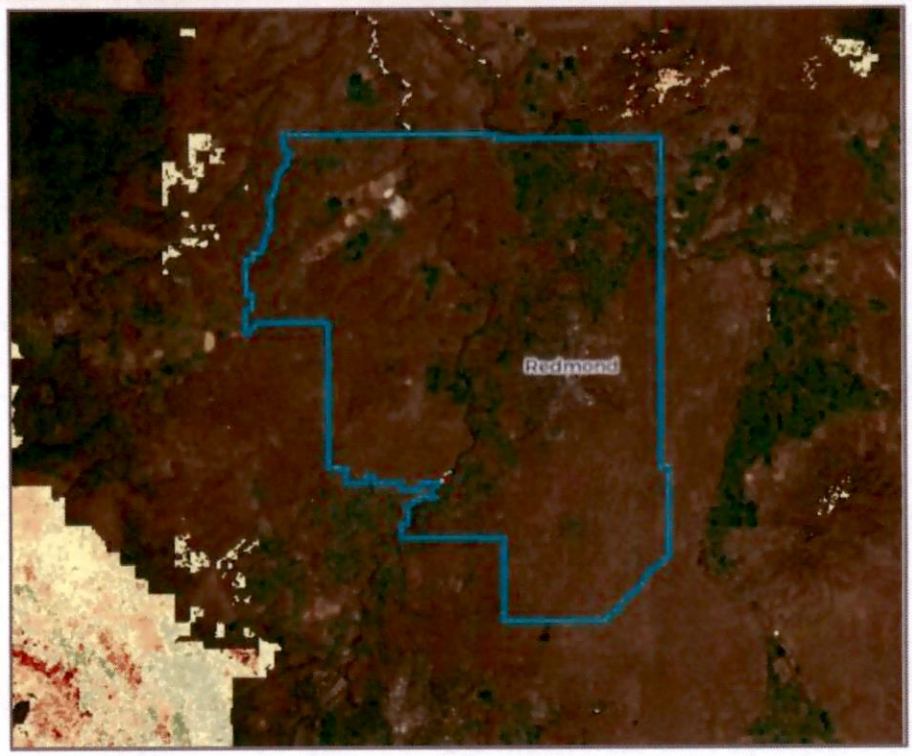
Generated: April 20, 2022

POTENTIAL IMPACT TO TIMBER RESOURCES

Potential impact to timber resources represents the exposure or consequence of wildfire on mapped highly valued timber on US Forest Service, Tribal, private lands, BLM, and state-managed lands.

The Potential Impact data layers characterize exposure and susceptibility only, and do not include the likelihood of an area burning. This differentiates the potential impact layers from Wildfire Risk layers, which account for the burn probability in the risk rating.

The data values reflect a range of impacts from a very high negative rating, where wildfire is detrimental (for example early seral stage and/or sensitive forests), to positive, where wildfire may produce an overall benefit (for example, understory thinning treatment for fire-adapted species).



Greater Redmond CWPP FINAL potential impact to timber resources, if a wildfire were to occur.

Category	Description	Acres	%*
Very High	Potential impact is very highly negative (top 5%).	0	0
High	Potential impact is highly negative (80-95th percentile).	0	0
Moderate	Potential impact is moderately negative (50-80th percentile).	2	< 1
Low	Potential impact is slightly negative (19-50th percentile).	5	< 1
Low Benefit	Potential impact is slightly beneficial to timber resources at low flame lengths (9-19th percentile).	0	0
Benefit	Potential impact is beneficial, with a cumulative positive impact on timber resources (0-9th percentile).	0	0
No Data	There are no timber resources mapped in the area, or it is considered non-burnable (urban, agriculture, barren,etc).	128,191	100

Source: 2018 Pacific Northwest Quantitative Wildfire Risk Assessment, US Forest Service

** Values may add up to over 100% due to rounding precision*

Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

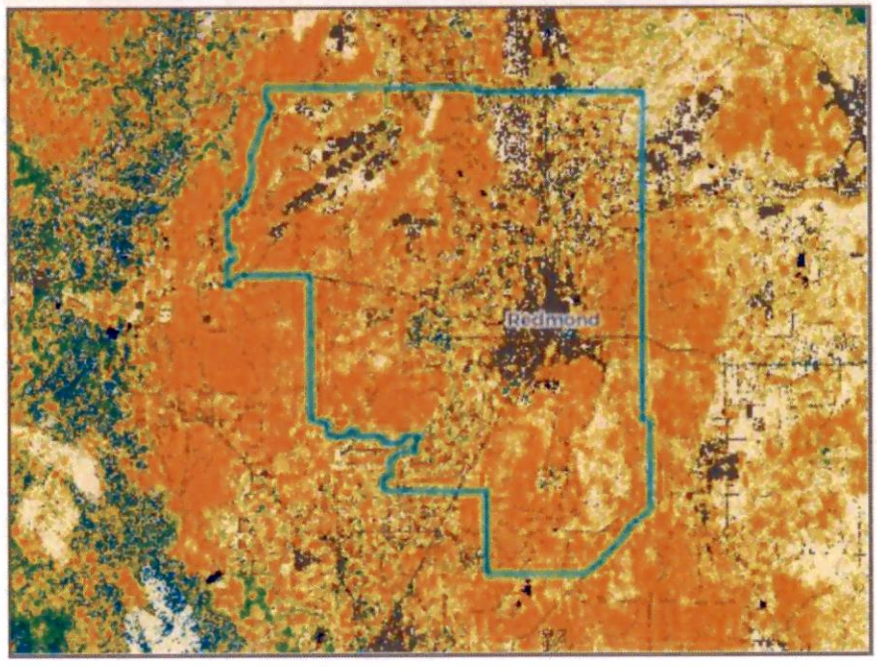
128,202 Acres: (200 Sq. Miles)

Generated: April 20, 2022

FUEL MODEL GROUPS

Fuel models describe the fire-carrying materials that make up surface fuels, such as such as grasses, shrubs and litter (see next page). Fuel models are developed from climate characteristics, existing vegetation type, cover, height, and other vegetation characteristics, and help us understand the fuels igniting and carrying fire. These fuel models can be grouped into broad categories of burnable fuels based on descriptions of live and dead vegetation that represent distinct fuel types, size classes, and load distributions (amounts), shown in the map and chart below.

Fuels and other elements of the fuelscape in the risk assessment were extensively reviewed and refined by local expert consultation, and the fuelscape was updated to account for wildfires that occurred through 2017.



Greater Redmond CWPP FINAL fuel model groups (see next page for descriptions of codes)

Category	Description	Acres	%*
Grass	Fuel models 101-104, (GR1; GR2; GR3; GR4)	19,612	15
Grass/Shrub	Fuel models 121-123, (GS1; GS2; GS3)	86,125	67
Non-burnable-other	Fuel Models 91-93,99, (NB1; NB2; NB3; NB9)	19,948	16
Non-burnable-water	Fuel Models 98, (NB8)	338	< 1
Slash-blowdown	Fuel Models 202, (SB2)	0	0
Shrub	Fuel Models 141-147, (SH1; SH2; SH3; SH4; SH5; SH6; SH7)	240	< 1
Timber Litter	Fuel Models 181-189, (TL1; TL2; TL3; TL4; TL5; TL6; TL7; TL8; TL9)	1,248	< 1
Timber-Understory	Fuel Models 161-163, 165, (TU1; TU2; TU3; TU5)	687	< 1

Source: 2018 Pacific Northwest Quantitative Wildfire Risk Assessment, US Forest Service

** Values may add up to over 100% due to rounding precision*

Table of Fuel Model Groups

40 Scott and Burgan Fire Behavior Fuel Models Description and Data Dictionary https://www.landfire.gov/fbfm40.php
https://www.landfire.gov/DataDictionary/f40.pdf

Group	Description
Grass Fuel models 101-104, (GR1; GR2; GR3; GR4)	GR1: Short, sparse dry climate grass is short, naturally or heavy grazing, predicted rate of fire spread and flame length low GR2: Low load, dry climate grass primarily grass with some small amounts of fine, dead fuel, any shrubs do not affect fire behavior GR3: Low load, very coarse, humid climate grass continuous, coarse humid climate grass, any shrubs do not affect fire behavior GR4: Moderate load, dry climate grass, continuous, dry climate grass, fuelbed depth about 2 feet
Grass/Shrub Fuel models 121-123, (GS1; GS2; GS3)	GS1: Low load, dry climate grass-shrub shrub about 1 foot high, grass load low, spread rate moderate and flame length low GS2: Moderate load, dry climate grass-shrub, shrubs are 1-3 feet high, grass load moderate, spread rate high, and flame length is moderate GS3: Moderate load, humid climate grass-shrub, moderate grass/shrub load, grass/shrub depth is less than 2 feet, spread rate is high and flame length is moderate
Non-Burnable-Other	Fuel Models 91-93, 99, (NB1; NB2; NB3; NB9) NB1: Urban NB2: Snow/Ice NB3: Agriculture NB9: Barren
Non-burnable-Water	Fuel Model 98, (NB8): Water
Slash-blowdown	Fuel Model 202, (SB2): Moderate load activity fuel or low load blowdown, 7-12 t/ac, 0-3 inch diameter class, depth about 1 foot, blowdown scattered with many still standing, spread rate and flame low
Shrub Group Fuel Models 141-147, (SH1; SH2; SH3; SH4; SH5; SH6; SH7)	SH1: Low load dry climate shrub, woody shrubs and shrub litter, fuelbed depth about 1 foot, may be some grass, spread rate and flame low SH2: Moderate load dry climate shrub, woody shrubs and shrub litter, fuelbed depth about 1 foot, no grass, spread rate and flame low SH3: Moderate load, humid climate shrub, woody shrubs and shrub litter, possible pine overstory, fuelbed depth 2-3 feet, spread rate and flame low SH4: Low load, humid climate timber shrub, woody shrubs and shrub litter, low to moderate load, possible pine overstory, fuelbed depth about 3 feet, spread rate high and flame moderate SH5: High load, humid climate grass-shrub combined, heavy load with depth greater than 2 feet, spread rate and flame very high SH6: Low load, humid climate shrub, woody shrubs and shrub litter, dense shrubs, little or no herbaceous fuel, depth about 2 feet, spread rate and flame high SH7: Very high load, dry climate shrub, woody shrubs and shrub litter, very heavy shrub load, depth 4-6 feet, spread rate somewhat lower than SH6 and flame very high

Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)

Generated: April 20, 2022

Timber Litter Group Fuel Models 181-189, (TL1; TL2; TL3; TL4; TL5; TL6; TL7; TL8; TL9)	TL1: Low load compact conifer litter, compact forest litter, light to moderate load, 1-2 inches deep, may represent a recent burn, spread rate and flame low TL2: Low load broadleaf litter, broadleaf, hardwood litter, spread rate and flame low TL3: Moderate load conifer litter, moderate load conifer litter, light load of coarse fuels, spread rate and flame low TL4: Small downed logs moderate load of fine litter and coarse fuels, small diameter downed logs, spread rate and flame low TL5: High load conifer litter, light slash or dead fuel, spread rate and flame low TL6: Moderate load broadleaf litter, spread rate and flame moderate TL8: Large downed logs, heavy load forest litter, larger diameter downed logs, spread rate and flame low TL8: Long needle litter, moderate load long needle pine litter, may have small amounts of herbaceous fuel, spread rate moderate and flame low TL9: Very high load broadleaf litter, may be heavy needle drape, spread rate and flame moderate
Timber-Understory Group Fuel Models 161-163, 165, (TU1; TU2; TU3; TU5)	TU1: Low load dry climate timber grass shrub, low load of grass and/or shrub with litter, spread rate and flame low TU2: Moderate load, humid climate timber-shrub, moderate litter load with some shrub, spread rate moderate and flame low TU3: Moderate load, humid climate timber grass shrub, moderate forest litter with some grass and shrub, spread rate high and flame moderate TU5: Very high load, dry climate shrub, heavy forest litter with shrub or small tree understory, spread rate and flame moderate

This report was generated from the Advanced Oregon Wildfire Risk Explorer map viewer: *tools.oregonexplorer.info/OE_HtmlViewer/index.html?viewer=wildfireplanning*. For more information on wildfire risk in a specific location, you can generate a Homeowner's report from the Oregon Wildfire Risk Explorer map viewer.

How to Cite:

Accessed from the Oregon Wildfire Risk Explorer on April 20, 2022
URL:https://tools.oregonexplorer.info/OE_HtmlViewer/index.html?viewer=wildfireplanning
Primary data Source: USDA Forest Service Pacific Northwest Quantitative Wildfire Risk Assessment (2018)

The Oregon Wildfire Risk Explorer site, tools and reports are the result of a collaboration among the following organizations and others:

Wildfire risk data is primarily from the USDA Forest Service 2018 Pacific Northwest Quantitative Wildfire Risk Assessment with some components from the 2013 West Wide Wildfire Risk Assessment. The information is being provided as is and without warranty of any kind either express, implied or statutory. The user assumes the entire responsibility and liability related to their use of this information. By accessing this website and/or data contained within, you hereby release the Oregon Department of Forestry, Oregon State University, and all data providers from liability. This institution is an equal opportunity provider. This publication was made possible through grants from the USDA Forest Service.

Appendix B
Glossary of Terms

- **Cohesive Strategy:** In 2009, Congress passed the Federal Land Assistance, Management, and Enhancement (FLAME) Act and called for a National Cohesive Wildland Fire Management Strategy, also known commonly as the Cohesive Strategy, to address wildland fire related issues across the nation in a collaborative, cohesive manner. The Cohesive Strategy was finalized in 2014 and represents the evolution of national fire policy: To safely and effectively extinguish fire, when needed; use fire where allowable; manage our natural resources; and as a Nation, live with wildland fire. The primary, national goals identified as necessary to achieving the vision are: **Resilient landscapes**: Landscapes across all jurisdictions are resilient to fire-related disturbances in accordance with management objectives. **Fire-adapted communities**: Human populations and infrastructure can withstand a wildfire without loss of life and property. **Wildfire response**: All jurisdictions participate in making and implementing safe, effective, efficient risk-based wildfire management decisions.

- **Crown Fires:** A fire that advances from top to top of trees or shrubs more or less independent of a surface fire. Crown fires are sometimes classed as running or dependent to distinguish the degree of independence from the surface fire.

- **Defensible Space:** Defensible Space, in the context of fire control, is the natural and landscaped area around a structure that has been maintained and designed to reduce wildfire danger by using vegetation that is fire resistant.

- **Deschutes Collaborative Forest Project:** In 2010, a collaborative group of local agencies and organizations formed a proposal for funding a large, collaborative forest restoration and hazardous fuels reduction project on public lands managed by the Deschutes National Forest. This landscape level project is known as the Deschutes Collaborative Forest Project (DCFP).

- **Dispersed Campgrounds & Recreational Sites:** Campsites or recreational sites members of the public use that are outside of a designated campground or developed recreation site. These sites do not have trash removal or facilities such as tables and fire pits. For more information on how to use dispersed recreational sites visit: http://www.fs.usda.gov/
- **Fire Adapted Community:** One of the tenents of the Cohesive Strategy. A Fire Adapted is one that acknowledges and takes responsibility for its wildfire risk, and implements appropriate actions at all levels. Deschutes County is a pilot community for the Fire Adapted Communities Learning Network. For more information visit:

http://www.facnetwork.org

- **Fire Break:** A gap in vegetation or other combustible materials that acts as a barrier to slow or stop the progress of a wildfire.

- **Fire Prone Area:** A geographic area that can support a wildfire due to weather and vegetation.

- **Fire Resiliency:** A landscape or geographic location that is able to withstand wildfire without suffering catastrophic effects, such as loss of life, home loss or damage and/or environmental damage.

- **Fire Return Interval:** The time between fires in a defined area or landscape.

- **Fire Suppression Costs:** The financial figure that is incurred during any operations by fire fighting agencies to suppress (or put out), a wildland fire.

- **FireFree:** A local program in Central Oregon that uses ten steps to educate property owners on how to defend their home from wildfire. FireFree also provides two annual events where homeowners can dispose of debris created from wildfire preparedness activities.

- **Firewise USA®:** A national program that provides a process that empowers neighbors to work together in reducing their wildfire risk. The National Fire Protection Association sponsors the Firewise USA® program.

- **Hazardous Fuel Reduction:** Reducing vegetation that could accelerate a wildland fire.

- **Hazardous Fuels:** Any fuel or vegetation that will sustain or accelerate a wildland fire.

- **High Intensity:** Fire intensity represents that energy releases during various phases of the fire. High intensity fires are damaging to certain vegetation and ecosystems that are not adapted to them. Much of the lower elevation forests in Central Oregon are adapted to lower intensities.

- **Overstory:** Also called the canopy. Made up of the tallest trees that stand over the rest of the plants in the landscape.

- **Pacific Northwest Coordination Center:** The Northwest Interagency Coordination Center (NWCC) is the Geographic Area Coordination Center for the Northwest Region, which includes the States of Oregon and Washington. Located

in Portland, OR, the NWCC serves as the focal point for interagency resource coordination, logistics support, aviation support and predictive services for all state and federal agencies involved in wildland fire management and suppression in the region. Cooperating agencies include the: Bureau of Land Management, US Forest Service, Oregon Dept of Forestry, US Fish and Wildlife Service, Bureau of Indian Affairs, Washington Dept. of Natural Resources and the National Park Service.

- **Resilient Landscapes:** A landscape that is able to recover quickly or repel disturbances that may be a departure from normal circumstances.

- **Silvicultural Treatments:** A planned series of treatment that aide in achieving the goals set forth by a diverse set of values. Silviculture is the practice of controlling the establishment, growth, composition, health and quality of forests to meet diverse needs and values.

- **Stand Dynamics:** The underlying physical and biological forces that shape and change a particular area or forest stand.

- **Structural Ignitability:** Also known as Structural Vulnerability; which refers to the probability of a home igniting during a large wildfire.

- **Structural Vulnerability Factors:** Factors that can increase or decrease a home's probability of igniting during a large wildfire. Examples include: roof composition, roof cleanliness, vent covers, deck composition & cleanliness, etc.

- **Thick Bark Pine:** a local species is Ponderosa Pines. Their thick bark makes them a fire resistant species. The lower elevation forests that were/are dominated by Ponderosa Pines are adapted to low intensity fire that would burn through as often as every ten years.

- **Tree Crowns:** See overstory. Also known as the tree canopy.

- **Understory:** The layer of vegetation beneath the main canopy of a forest.

- **Wildfire Preparedness:** Changing behaviors and/or processes to reduce the impact a wildfire may have on the population.

- **Wildland Fire:** Any non-structural fire that occurs in vegetation or natural fuels. An unplanned, unwanted wildland fire including unauthorized human-caused fires, escaped wildland fire use events, escaped prescribed fire projects, and all other wildland fires where the objective is to put the fire out.

- **Wildland Fuels:** Vegetation that is located in an area in which development is essentially non-existent, except for roads, railroads, powerlines, and similar transportation facilities. Structures, if any, are widely scattered.

- **Wildland Urban Interface (WUI):** The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. Describes an area within or adjacent to private and public property where mitigation actions can prevent damage or loss from wildfire. Much of Deschutes County is considered Wildland Urban Interface.

Appendix C
Post Fire Recovery

During the Fire Contacts

Deschutes County 911 Non-Emergency Line	(541) 693-6911
American Red Cross (Central and Eastern Oregon Chapter)	(541) 382-2142

Web links for Fire and Evacuation Information:

• Central Oregon Fire Information	Central Oregon Fire Info
• Deschutes County Emergency Blog	Deschutes County Emergency Info
• Central Oregon Interagency Twitter Feed	twitter.com/CentralORFire
• Deschutes County Sheriff's Twitter Feed	twitter.com/DeschutesSO
• Evacuation Guide	Ready, Set, Go
• Emergency Notifications	Deschutes County Alerts

Post-Fire Recovery Community Issues to Consider

Following a wildfire, communities may be facing a host of issues. The complexities involved in mid and long-term strategies for economic, environmental and social recovery may be daunting. Learning from the experiences of others is helpful. Considering relevant questions like:

- How soon can or should schools reopen?
- Can debris removal efforts be expedited? If so, what is the cost and who will pay for it?
- Does the impact warrant inviting the Oregon DOJ Charitable Activities Section regulators to send a team to ensure crooks and scam artists don't take advantage of vulnerable residents?
- Are emergency grants available to restore basic public services?
- What system(s) can be used to equitably and efficiently distribute the donations that a community receives following a catastrophic fire?
- What resources are available for small businesses attempting to reestablish? Do new programs need to be created?
- How will tourism be affected?

Deschutes County Long-Term Recovery Efforts

The Deschutes County Sheriff's Office Emergency Management Team, working with residents and community stakeholders, is developing a Disaster Recovery Framework. The Framework is part of a suite of plans that address various elements of emergency management. It aims to establish guidelines for how the Deschutes County Community will work together to restore, rebuild, and reshape the

physical, social, economic and natural environment in the months and years following a disaster or emergency.

After the Fire Resources for Affected Residents

Fire Management Assistance (FMAG) is available to States, local and tribal governments, for the mitigation, management, and control of fires on publicly or privately owned forests or grasslands, which threaten such destruction as would constitute a major disaster. The Fire Management Assistance declaration process is initiated when a State submits a request for assistance to the Federal Emergency Management Agency (FEMA) Regional Director at the time a "threat of major disaster" exists. The entire process is accomplished on an expedited basis and a FEMA decision is rendered in a matter of hours.

The Fire Management Assistance Grant Program (FMAGP) provides a 75 percent Federal cost share and the State pays the remaining 25 percent for actual costs. Before a grant can be awarded, a State must demonstrate that total eligible costs for the declared fire meet or exceed either the individual fire cost threshold - which is applies to single fires, or the cumulative fire cost threshold, which recognizes numerous smaller fires burning throughout a State. Eligible firefighting costs may include expenses for field camps; equipment use, repair and replacement; tools, materials and supplies; and mobilization and demobilization activities.

FEMA Individual Assistance (FEMA IA) has created a set of tools to help those facilitating their community's recovery. Community Services Programs deliver a variety of services to assist in disaster recovery. Disaster Housing Resources provides links to access information on multiple disaster housing programs and strategies. FEMA Voluntary Agency and Donations Coordination delivers information, support and guidance during disaster recovery. The National Emergency Child Locator Center and National Mass Evacuation Tracking System are both tracking databases that can be activated during disasters and assist in reunifying family members. The National Shelter System is a database that supports the agencies responsible for Mass Care and Emergency Assistance. For information on these tools follow this link to FEMA's site.

FEMA Public Assistance (FEMA PA) mission's to provide assistance to State, Tribal and local governments, and certain types of Private Nonprofit organizations so that communities can quickly respond to and recover from major disasters or emergencies declared by the President.

Through the PA Program, FEMA provides supplemental Federal disaster grant assistance for debris removal, emergency protective measures, and the repair, replacement, or restoration of disaster-damaged, publicly owned facilities and the facilities of certain Private Non-Profit (PNP) organizations. The PA Program also encourages protection of these damaged facilities from future events by providing assistance for hazard mitigation measures during the recovery process.

The Federal share of assistance is not less than 75% of the eligible cost for emergency measures and permanent restoration. The grantee (usually the State) determines how the non-Federal share (up to 25%) is split with the sub-grantees (eligible applicants).

Small Business Disaster Loans through the Small Business Administration (SBA). SBA provides low-interest disaster loans to businesses of all sizes, private non-profit organizations, homeowners, and renters. SBA disaster loans can be used to repair or replace the following items damaged or destroyed in a declared disaster: real estate, personal property, machinery and equipment, and inventory and business assets.

Oregon VOAD (Voluntary Organizations Active in Disaster) is a group of faith-based, community service organizations with disaster relief roles related to short and long-term recovery from disasters.

Functions include but are not limited to: damage assessment, cleanup, building repair, donations management, child care, clothing, communication, counseling, disaster welfare inquiry, financial assistance, food, human relations, mass care, sheltering, transportation, volunteer staffing, warehousing and bulk distribution. ORVOAD coordinates disaster planning with member agencies to ensure reduction of duplication and an increase in effective delivery of services.

Natural Resources Conservation Services (NRCS) may provide funding they are allocated to help with fire recovery efforts for agricultural and private, non-industrial forestland owners. Program and application announcements will be made as funding becomes available. Please check this site frequently for updates.

American Red Cross Casework: Providing Emergency Assistance is trains Red Cross caseworkers how to conduct effective client interviews and provide appropriate assistance to help meet a client's immediate disaster-caused or disaster-aggravated needs.

Fire Recovery Safety Tips

REMEMBER – use caution and good judgment. Hazards may still exist, even though the fire is controlled.

ELECTRICAL

Electrical Safety Facts

General: An important part of the disaster recovery is hazard recognition. Should you come across damaged or fallen power poles or lines, contact your local electrical power authorities. DO NOT TOUCH THE DOWNED WIRES. In the cleanup area, be especially careful when cutting trees and operating heavy equipment around power lines. Vegetation and power poles may have lost stability due to fire damage.

If a power line or pole should fall next to you while working in the area, *do not walk – hop out of the area.* (Using this technique, you will be less likely to be a conductor of electricity).

Electricity is always trying to go somewhere. It goes easily through conductors; it does not go easily through non-conductors.

Conductors	Non-Conductors
Metal	Rubber
Water	Glass
Wet Things	Plastic
Things In Water (including animals/pets)	

One of the most important fixtures in the conduction of electric current are utility poles. The fire or fire suppression actions may have dislodged or broken some of these poles, causing the wires to sag or break, resulting in extremely hazardous conditions. Do not touch anything at the scene.

Trees can also be dangerous conductors of electricity. When a tree falls or grows into contact with power wires, the electric power diverts and finds a path to the ground through the branches and the trunk. Anyone who comes into contact with these trees is subject to tragic consequences, since electric power can easily jump from the tree to the person.

Electrical Safety Tips

- Do not overload circuits; don't operate several large appliances at the same time on the same circuit.
- Do not use extension cords to plug in many items on one outlet.
- Turn off appliances when you finish using them. Provide adequate air circulation around all

appliances to prevent over-heating. Keep appliances clean, repaired and serviced.

- Check wires and plugs regularly. Replace worn or frayed wires. Do not run cords under carpets or across doorways.
- Be careful when replacing fuses or breakers. Keep the area near the circuit box dry and turn the main switch off before changing the fuse/breaker.
- Temporary lines should be removed from service.

Electrical Locations To Avoid

- Electrical meters and service lines coming into the home or other outbuildings.
- Any power supply line which appears to sag, show bare wire, or have insulation missing.
- Secured power sub-stations or any area identified as high voltage.
- Downed power lines.

Emergency Procedures for an Electrical Fire

- Call the fire department.
- Shut off power supply at the breaker if possible.

Restoring Electric Power

If, upon returning to your residence, there is no electrical power, please check to make sure the main breaker is on. If the breakers are on and power is still not present, please call to report the power outage to your local electrical power authorities.

Reporting problems like a down or broken wire will speed up the process of power restoration.

- Stand off to one side of the breaker box when turning on the main breaker. Do not stand directly in front of the box.
- If any smells of hot electrical insulation or sparking occurs, turn of the breaker immediately and call an electrician.
- If electrical lights or appliances appear brighter than normal, turn off main breaker. The service entrance needs to be checked.

To Change A Fuse

Try to find the cause of the blown fuse, and correct it by disconnecting the defective appliance or appliances causing the overload or short circuit. Shut off the main power switch when you change the fuse.

- Do not replace fuses with a higher amp rating fuse than you removed.
- Turn on the main switch to restore the power.

- If the fuse blows again, leave it alone and contact a certified electrician. Other problems may exist and should be investigated to remove the possibility of an electrical fire.

To Reset A Circuit Breaker

Try to find the cause of the overload or short circuit and correct it by disconnecting the defective appliance or appliances. Turn the switch to "on" to reset and restore power. If breaker trips again leave it alone, and contact a certified electrician. Other problems may exist and should be found to remove the possibility of an electrical fire.

Special Information of Fuses & Circuit Breakers

Fuses and circuit breakers shut off the current whenever too much current tries to flow through a wire because of:

- A short circuit, possibly caused by a bare wire touching the ground;
- Overloading, possibly caused by too many lights or appliances on one circuit; or
- By defective parts in an appliance.

Know where the main circuit or fuse box is located in your house. Be sure you can locate the main switch; it controls all of the power coming into the house and is usually inside the circuit box. In some cases, however, it may be located outside of the house. Fuse or circuit boxes generally are labeled to designate which area of the house the circuits or fuses serve.

DRINKING WATER

Restoring Water Systems

Unless impacted by a fuel spill, the fire should not have affected wells at undamaged homes. If your house was damaged, your water system may potentially have become contaminated with bacteria due to loss of water pressure. In this case it is recommended that the well be disinfected and the water be tested before consumption. To disinfect your water system, pour ½ - 1 cup of chlorine bleach inside the well casing and turn on all faucets until a chlorine scent in noticed. Allow the chlorine solution to remain in the system overnight. The following morning, open all faucets and flush the system until free of chlorine smell.

If you have a public use well or water system, contact the Deschutes County Public Health Department for specifics on testing prior to consumption of any water. The Drinking Water Program administers and enforces drinking water quality standards for approximately 175 public water systems within Deschutes County. More information can be found on their website at https://www.deschutes.org/health/page/drinking-water

Oregon implements drinking water protection through a partnership of DEQ (Department of Environmental Quality) and the OHA (Oregon Health Authority). The program provides information about drinking water, and helps Oregonians get involved in protecting drinking water quality. In general, for questions regarding groundwater sources, contact OHA. Contact DEQ for questions about protecting public water supplies using surface water.

For questions about regulations, water quality, treatment plants, and testing, contact OHA who is the primacy agency for the implementation of the federal Safe Drinking Water Act in Oregon.

OHA's webpages provide the most useful info for consumers about drinking water protection:

https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/DRINKINGWATER/Pages/index.aspx

Information specific for private domestic wells is here:

https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/DRINKINGWATER/SOURCEWATER/DOMESTICWELLSAFETY/Pages/index.aspx

SOLID WASTE

Removing Debris

Cleanup of your property can expose you to potential health problems from hazardous materials. Wet down any debris to minimize health impacts from breathing dust particles. The use of a two-strap dust particulate mask with nose clip and coveralls will provide the best minimal protection. Leather gloves should be worn to protect your hands from sharp objects while removing debris.

Hazardous materials such as kitchen and bathroom cleaning products, paint, batteries, contaminated fuel and damaged fuel containers must be handled properly. Contact your local County Officials for specific handling restrictions and disposal options.

All hazardous materials should be labeled as to their contents if known!

HEATING FUELS

Checking Propane Tanks

Propane suppliers recommend homeowners contact them for an inspection prior to reusing their system. If the fire burned the tank, pressure relief valve probably opened and released the contents of the tank. Tanks, brass and copper fittings, and lines may be heat-damaged and unsafe. Valves should be turned off and remain closed until the propane suppliers inspect the system.

Checking Home Heating Oil Tanks

Heating oil suppliers recommend homeowners contact them for an inspection prior to reusing their system. The tank may have shifted or fallen from the stand and fuel lines may have kinked or weakened. Heat from the fire may have caused the tank to warp or bulge. Non-vented tanks are more likely to bulge or show signs of stress. The fire may have loosened or damaged fittings and filters. If the tank is intact and heating oil remains in the tank, the heating oil should still be good. If you have questions on the integrity of the tank, fuel lines, tank stand, or the fuel, or need assistance in moving the tank or returning it to service, contact your fuel supplier.

MISCELLANEOUS SAFETY AWARENESS

Ash Pits

Holes created by burned trees and stumps create ash pits, which are full of hot ashes. Mark them for your safety, as they can stay hot for many days following the fire, causing serious burns. Warn your family and neighbors, especially children. Tell them to watch for ash pits and to not put hands or feet in these holes—they are hot!

Evaluation of Trees Damaged by Fire

The following information will assist you in evaluating any trees that have been scorched or burnt by the fire. Identification of the type of tree affected is important and can easily be done. Two basic types of trees exist in this area: deciduous and evergreen. Deciduous trees are broad leaf trees that lose their leaves in the fall.

In this area we have a variety of deciduous tree species. Evergreen trees have needles and in this area we mainly have Ponderosa Pine, Lodgepole Pine and Western Juniper.

First: visually check the tree stability. Any tree weakened by fire may be a hazard. Winds are normally responsible for toppling weakened trees. The wind patterns in your area may have changed as a result of the loss of adjacent tree cover. Seek professional assistance before felling trees near power lines, houses or other improvements.

If the tree looks stable:

- Visually check for burnt, partially burnt or broken branches and tree tops that may fall.
- Check for burns on the tree trunk. If the bark on the trunk of the tree has been burned off or scorched by very high temperatures completely surround the tree's circumference, the tree will not survive. This is because the living portion of the tree (cambium) was destroyed. The bark of the tree provides protection to the tree during fire. Bark thickness varies based upon tree species: check carefully to see if the fire or heat penetrated the bark. Where fire has burnt deep into the tree trunk, the tree should be considered unstable until checked.
- Check for burnt roots by probing the ground with a rod around the base of the tree and out away from the base several feet. The roots are generally six to eight inches below the surface. If you find that the roots have been burned you should consider this tree very unstable; it could easily be toppled by wind.

If the tree is scorched

- A scorched tree is one that has lost part or all of its needles. Leaves will be dry and curled. Needles will be a light red or straw colored. Healthy deciduous trees are resilient and may possibly produce new branches and leaves, as well as sprouts at the base of the tree. Evergreen trees, particularly long-needled trees, may survive when partially scorched. An evergreen tree that has been damaged by fire is subject to bark beetle attack. Please seek

professional assistance concerning measures for protecting evergreen trees from bark beetle attack.

Residual Smoke In Fire Interior

Smoke may be present on the interior of the fire for several days following containment. This occurs as a result of stumps, roots, and other surface materials being exposed to changing temperatures and wind conditions. Smoke volume from these materials may fluctuate depending on weather conditions. This activity should not pose a risk and smoke will continue to dissipate until materials are fully consumed or extinguished by fire crews or weather.

Flooding Risk

With the recent large high intensity wildfires in Oregon certain locations within burned areas, or downhill and downstream of burned areas are much more susceptible to flash flooding and debris flows. Even areas that are not traditionally flood prone are at risk due to changes to the landscape caused by wildfire. Rainfall that would normally be absorbed will run off extremely quickly after a wildfire, as burned soil can be as water repellant as pavement. As a result, much less rainfall is required to produce a flash flood. A good rule of thumb is, if you can look uphill from where you are and see an area burned by wildfire, you are at risk.

Preparing for Flooding

In the event of moderate to heavy rainfall, do not wait for a flash flood warning in order to take steps to protect life and property. Thunderstorms that develop over the burned area may begin to produce flash flooding and debris flows before a warning can be issued. If you are in an area vulnerable to flooding and debris flows, plan in advance and move away from the area. There may be very little time to react once the storms and rain start.

- Have an evacuation/escape route planned that is least likely to be impacted by Flash Flooding or Debris Flows
- Have an Emergency Supply Kit available
- Stay informed before and during any potential event; knowing where to obtain National Weather Service (NWS) Outlooks, Watches and Warnings via the NWS Pendleton Website, Facebook, Twitter, or All Hazards NOAA Weather Radio
- Be alert if any rain develops. Do not wait for a warning to evacuate should heavy rain develop.
- Call 911 if you are caught in a Flash Flood or Debris Flow
- Contact local officials for additional risk information and potential mitigation efforts
- Contact The US Army Corps of Engineers regarding their Silver Jackets Program