

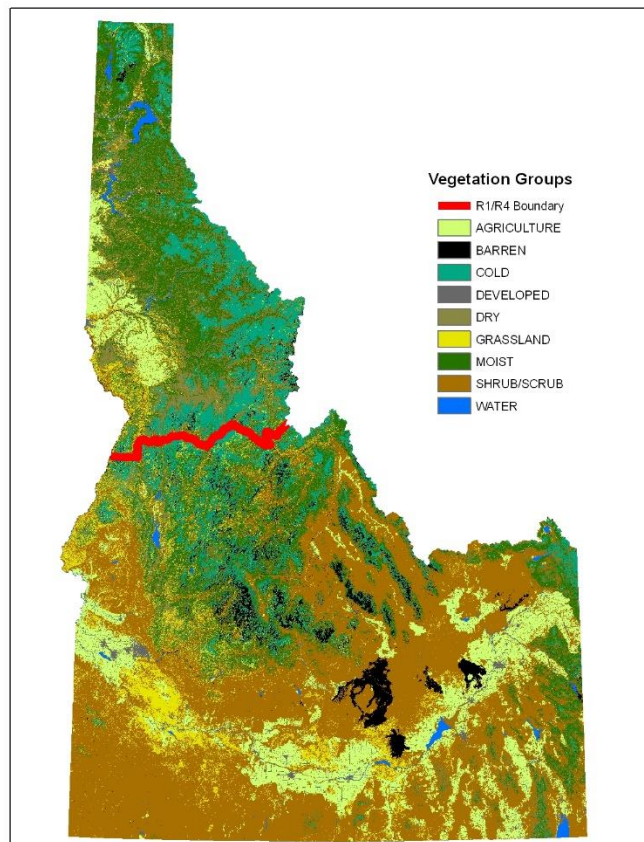
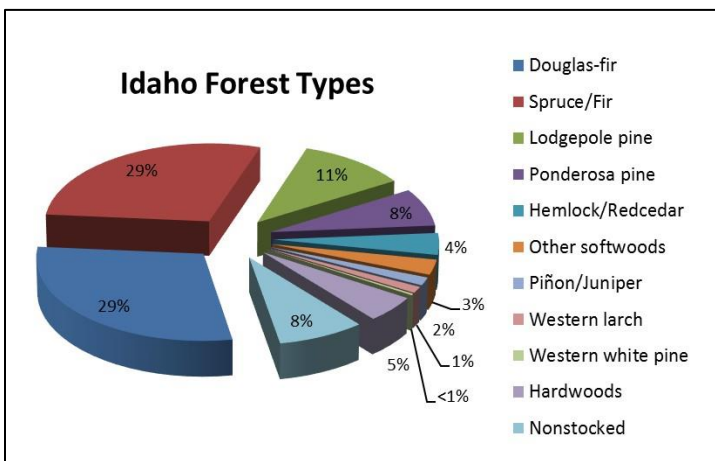


## Idaho's Forest Resources

Idaho has over 21 million acres of forest land, from the Canadian border in the north, to the Great Basin in the south. Elevations range from less than 1,000 feet along the Clearwater River valley to over 12,000 feet in the Lost River Range of southeastern Idaho. The mixed conifer forests in the Panhandle area can be moist forest types that include tree species found on the Pacific Coast such as western hemlock, Pacific yew, and western redcedar. Southern Idaho forests are generally drier, and ponderosa pine and Douglas-fir are most common. Lodgepole pine, Engelmann spruce, whitebark pine and subalpine fir occur at higher elevations throughout the state.

## Idaho Vegetation Types

Douglas-fir and spruce/fir forest types make up the largest proportions of forests in Idaho, followed by lodgepole pine, ponderosa pine, hemlock/redcedar, other softwoods, pinyon/juniper, western larch, western white pine, and hardwoods.



# The Importance of Idaho's Forests

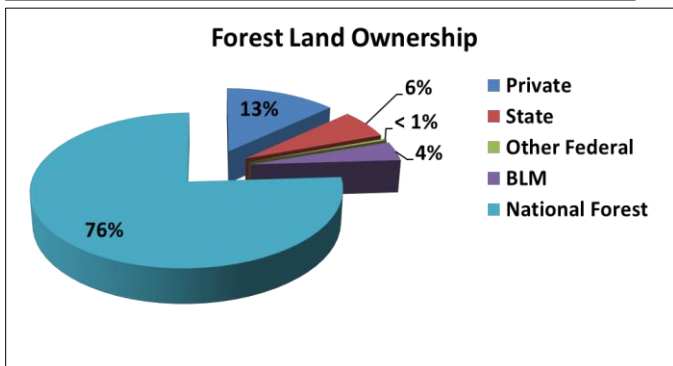
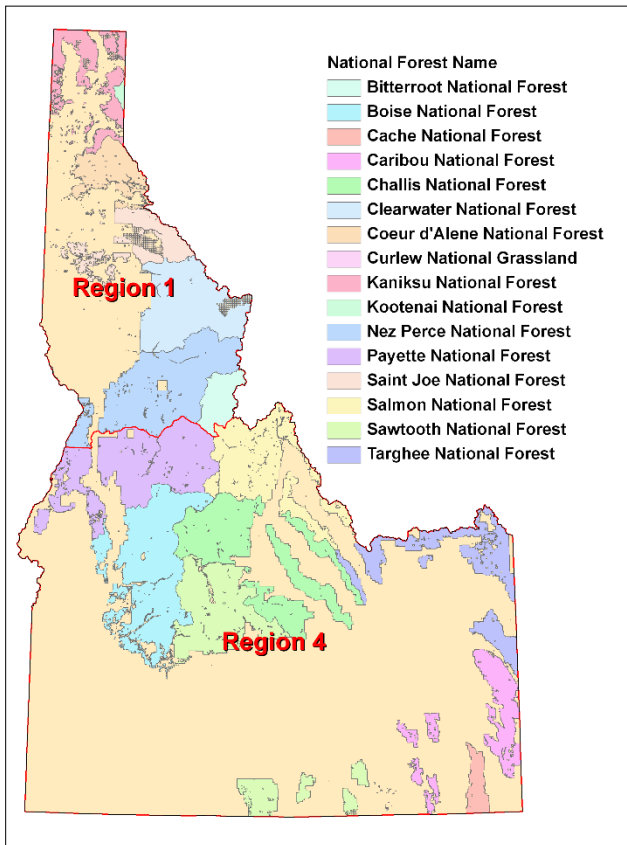
Idaho's forests are important for many reasons. Forests are home to wildlife, provide watersheds for drinking water, and protect streams that are habitat for many species of fish, including salmon, steelhead and bull trout. Forests are also important for recreation, and Idaho has over 4.5 million acres of wilderness. Idaho's forests are renewable and are an important resource for the forest products industry. Maintaining healthy forests is crucial to protect all the things that they provide.

## Forest Ownership in Idaho

The majority of forest land in Idaho is owned by the Federal government (> 16 million acres), and of this, most is administered by the U.S. Forest Service. The state of Idaho owns just under 1.3 million acres, and private landowners own an additional 2.8 million acres. The various owners often have different management objectives. Idaho's National Forests lie within two administrative regions. The Northern Region (Region 1) is located north of the Salmon River and is comprised of the Idaho Panhandle, Nez Perce-Clearwater and Bitterroot National Forests. The Intermountain Region (Region 4) is in southern Idaho and includes the Boise, Payette, Sawtooth, Salmon-Challis, and Caribou-Targhee National Forests.

## Idaho's Forest Industry

Idaho has a productive forest industry, with 2020 estimated revenues of wood and paper products totaling \$2.4 billion. An estimated 16,158 people were directly employed in the forest products industry in 2020. The total harvest was estimated at 1.1 billion board feet of timber. An estimated 64% of this total came from private lands. State land provided 23% and federal lands provided 13% of the total. Most of Idaho's commercial forestland and larger production facilities are located north of the Salmon River. Forest products from Idaho's forests are sold throughout the world. [Link to University of Idaho Policy Analysis Group.](#)



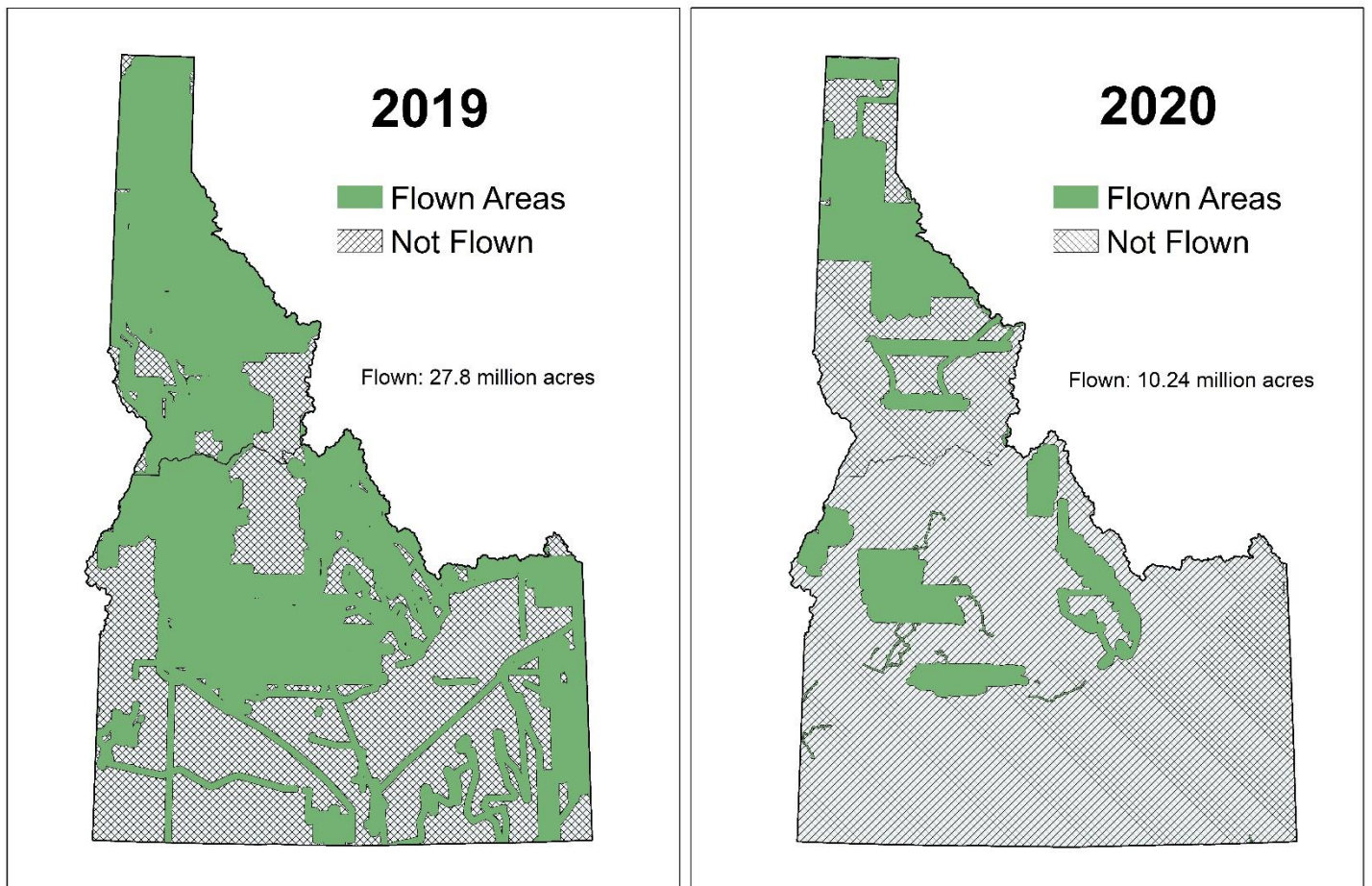
# Aerial Detection Survey Results

Due to COVID-19, only targeted aerial surveys were completed in 2020, with only 10.24 million acres flown as compared to 27.8 million acres flown in 2019. For this reason, year to year comparisons of the number of acres affected by a given damage agent are not valid for 2020, and are therefore not included in this year's report.

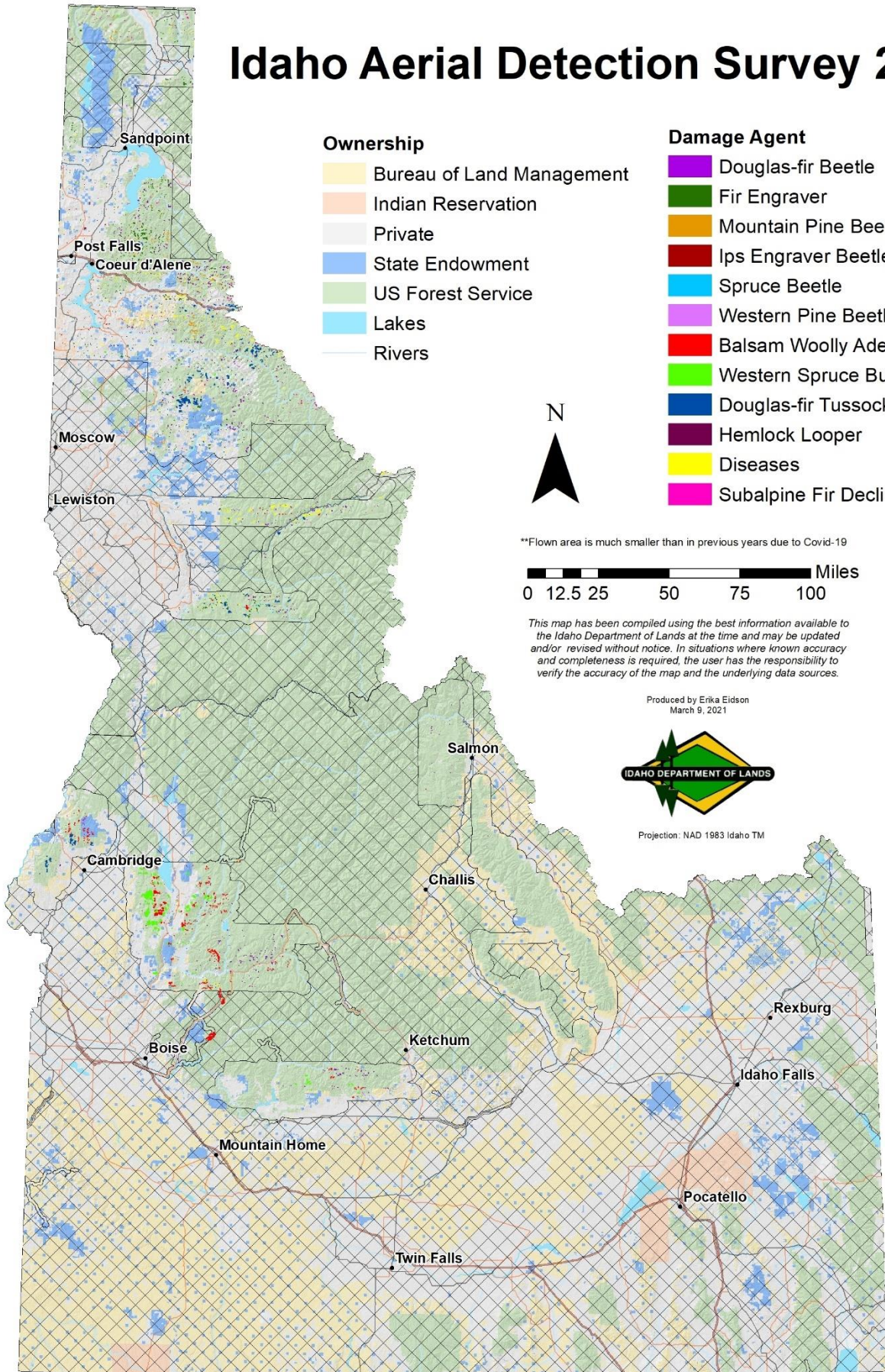
## \*Notes on Aerial Detection Surveys

It is important to remember that trees attacked by bark beetles do not usually change color until the following year, so mortality observed in 2020 actually represents trees that were attacked in 2019.

Idaho's forests are also significantly impacted by diseases, but not all diseases are easily detected from the air. With the exception of foliar diseases, **most forest diseases are not well represented by aerial detection surveys**. Root diseases are very common in northern Idaho, affecting over 8 million acres, with most mortality occurring in Douglas-fir, grand fir, and subalpine fir in northern Idaho. Dwarf mistletoes infect over 2.5 million acres of forest statewide. These parasites are especially damaging on western larch, Douglas-fir, lodgepole pine and ponderosa pine. White pine blister rust is widespread throughout the range of western white, whitebark and limber pines, affecting millions of trees, though an acreage estimate would be difficult to determine.



# Idaho Aerial Detection Survey 2020



### Ownership

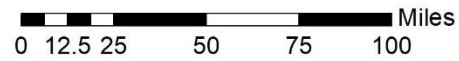
- Bureau of Land Management
- Indian Reservation
- Private
- State Endowment
- US Forest Service
- Lakes
- Rivers

### Damage Agent

- Douglas-fir Beetle
- Fir Engraver
- Mountain Pine Beetle
- Ips Engraver Beetles
- Spruce Beetle
- Western Pine Beetle
- Balsam Woolly Adelgid
- Western Spruce Budworm
- Douglas-fir Tussock Moth
- Hemlock Looper
- Diseases
- Subalpine Fir Decline



\*\*Flown area is much smaller than in previous years due to Covid-19



*This map has been compiled using the best information available to the Idaho Department of Lands at the time and may be updated and/or revised without notice. In situations where known accuracy and completeness is required, the user has the responsibility to verify the accuracy of the map and the underlying data sources.*

Produced by Erika Eidson  
March 9, 2021



Projection: NAD 1983 Idaho TM

## Principal Damage Agents (2020 Acres)



### Bark Beetles

In 2020, fir engraver mortality was observed on over 12,000 acres. The extent and pattern of fir engraver-caused damage appeared similar in 2020 as compared to previous years. About 7,600 acres were impacted by mountain pine beetle in 2020. In 2019, there was a lot of mountain pine beetle activity southeast of Grangeville. Much of that area was not flown again in 2020, but the area that was flown appears to show a decrease in mountain pine beetle activity. Most of the mountain pine beetle-caused mortality was in lodgepole pine, but approximately 300 acres of other pine species (limber, ponderosa, whitebark, and western white) were affected in 2020. Spruce beetle had been causing significant amounts of mortality around Elk City for the past several years, but spruce beetle activity appears to have died down in 2020. Douglas-fir beetle caused mortality on around 10,000 acres, and western pine beetle-caused mortality occurred on about 500 acres in 2020. Pine engraver-caused mortality occurred on approximately 500 acres in 2020. **The curtailed 2020 ADS survey accounts for many of these acreage declines.**

### Defoliators

Western spruce budworm is a major defoliator of Douglas-fir and grand fir in Idaho, especially in the south. Roughly 24,000 defoliated acres were recorded in 2020. Budworm activity is mostly in southern Idaho, and it appears to have decreased since 2019. The western hemlock looper outbreak that damaged over 400,000 acres on the Nez Perce-Clearwater and St. Joe National Forests in 2019 collapsed with no defoliation recorded in 2020. The Douglas-fir tussock moth outbreak in southern Idaho that caused defoliation on over 212,000 acres at its peak in 2019 largely collapsed. Only 3,000 acres was recorded west of Cambridge in 2020. In 2020, 16,700 acres were damaged in northern Idaho east of Clarkia and in the Silver Valley. Ground surveys indicate that populations are increasing and further defoliation is expected in 2021. Areas of Douglas-fir tussock moth outbreak were prioritized for ADS flights in 2020, so these recorded acreages likely captured much of the damage from Douglas-fir tussock moth.

### Other Agents

Approximately 12,000 acres were affected by larch needle cast in 2020. The decrease is attributed to favorable conditions for the pathogen in the spring during shoot elongation. Mortality of subalpine fir, attributed to balsam woolly adelgid, western balsam bark beetle and possible root disease occurred on about 24,000 acres in 2020. Balsam woolly adelgid continues to be a major mortality agent of true fir, especially in southern Idaho. ADS surveyors are improving methods for identifying and recording balsam woolly adelgid-caused damage.

[Link to IDL Insect and Disease page with ADS map](#)

# Key Forest Insect Issues in Idaho

Due to COVID-19, only targeted aerial surveys were completed in 2020, with only 10.24 million acres flown. Lower affected acres for damage agents are in large part due to the reduced survey.



**Bark beetles** continue to kill susceptible trees in Idaho, though the totals have decreased markedly over the last several years. The decrease is most likely due to host depletion. In 2020, mountain pine beetle killed trees on over 7,500 acres in Idaho, compared to a peak of over 1.9 million acres in 2010. **Spruce beetle** is another bark beetle that is capable of large-scale mortality in susceptible spruce stands. At its peak, 18,400 affected acres were identified in the Nez Perce National Forest north of Elk City in 2019. In 2020 only about 300 affected acres were observed, even though the outbreak area was included in 2020's abbreviated flight schedule (due to COVID-19). [Link to IDL publication](#)

**The Douglas-fir tussock moth (DFTM)** is a defoliating insect that periodically infests Douglas-fir and true firs in Idaho. Outbreaks occur approximately once per decade, usually lasting 1-4 years before natural controls bring the populations down to undetectable levels. In southern Idaho, 200,000 acres of defoliation was observed in and adjacent to the Boise and Payette National Forests at the outbreak's in 2019. Only 3,000 acres with defoliation was observed in 2020 west of Cambridge. Douglas-fir tussock moth defoliated over 16,000 acres in the Silver Valley and east of Clarkia in northern Idaho in 2020. The defoliation near Clarkia is expected to continue in 2021, though the populations in the Silver Valley are expected to collapse in 2021. [Link to IDL fact sheet](#); [Link to IDL 2020 Douglas-fir Tussock Moth Report](#)



**Gypsy moth survey.** Over 2,700 pheromone traps were deployed and collected in Idaho in 2020, and no gypsy moths were captured. A delimit survey was concluded in Bannock County in 2018. [Link to IDL 2020 gypsy moth report](#)

**Western spruce budworm** infested acres identified in 2020 were almost 24,000, compared to 292,000 acres in 2019. Most of the decrease can probably be attributed to the abbreviated survey in 2020. In 2011 the total was over 1.8 million acres. [Link to USFS publication](#). [Link to IDL fact sheet](#).

# Key Forest Disease Issues in Idaho

Due to COVID-19, only targeted aerial surveys were completed in 2020, with only 10.24 million acres flown. Lower affected acres for damage agents are in large part due to the reduced survey.



**Root diseases** north of the Salmon River kill millions of trees every year. Douglas-fir and grand fir are particularly susceptible. Root diseases are more prevalent than aerial detection survey data indicate, and are very common in northern Idaho, though they occur statewide. Root diseases can be managed through silviculture by encouraging tolerant species. While all conifer species are susceptible to root diseases (especially at a young age), pines, western larch and western redcedar are more tolerant, especially after the trees reach 20-25 years of age. [Link to additional information](#)

**White pine blister rust** is an introduced disease that kills 5-needled pines (western white, whitebark and limber) throughout western North America. Western white pine (WWP) was the dominant tree species in much of northern Idaho. Due to rust, fire suppression and past management practices, western white pine is now a minor component of many of these same forests. Idaho's forest type that was dominated by western white pine is now reduced to 5% of its historic levels. The Idaho Department of Lands aggressively plants rust resistant WWP in stands where it was historically present. WWP is fast growing, drought tolerant, and is not highly susceptible to root diseases. *Photo (R) by J. Schwandt* [Link to USFS publication](#)

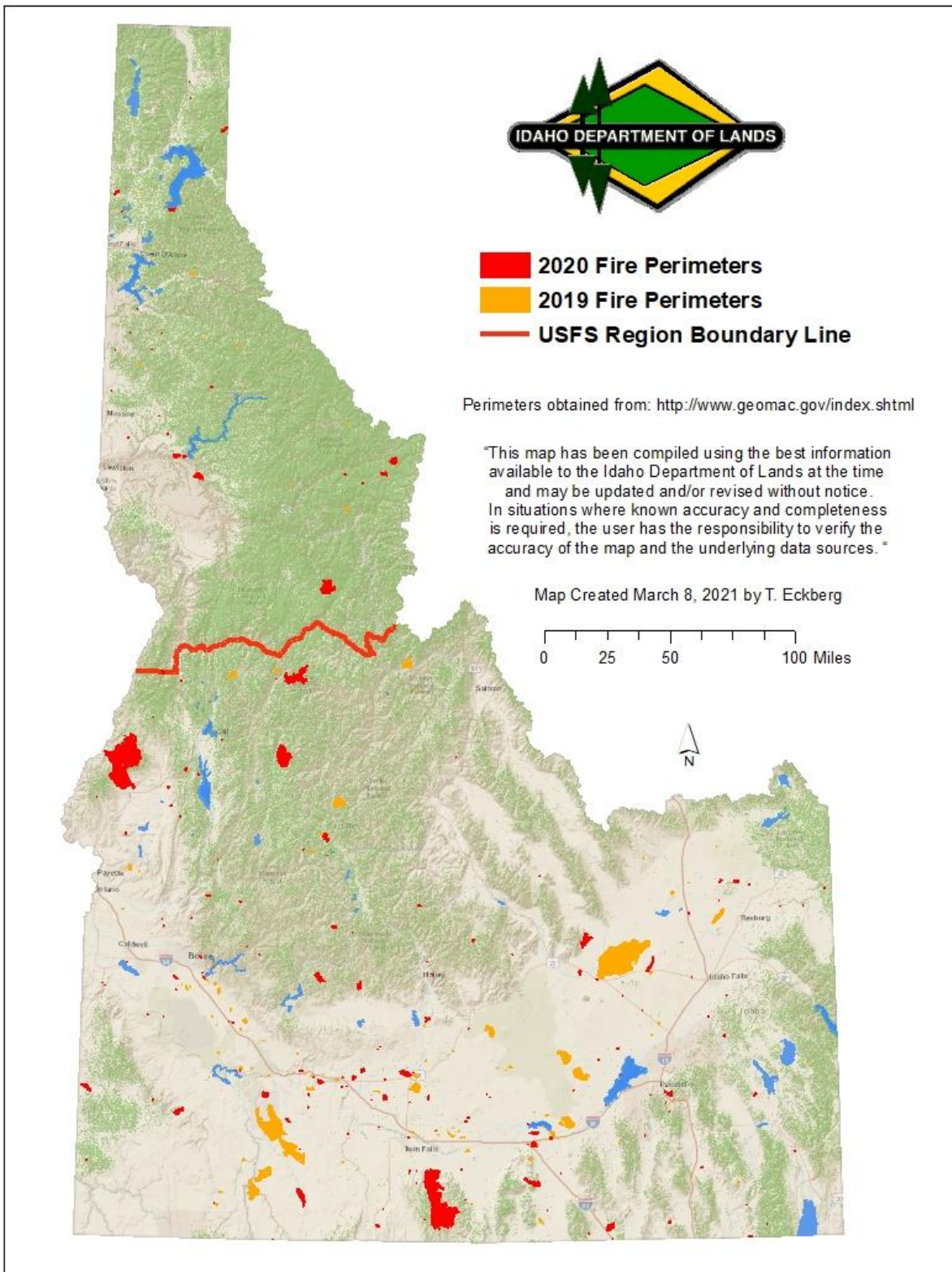


**Dwarf mistletoes** infect many species of conifers in Idaho. Most damage is on western larch, Douglas-fir, ponderosa and lodgepole pines. These parasitic plants reduce growth and over time can kill trees. Dwarf mistletoes are fairly host specific and can be managed through silviculture by removing heavily infected trees and by converting stands to nonhosts. [Link to USFS publication](#)



**Foliar Diseases** can infect many species of conifers in Idaho, but damage is most noticeable on western larch and lodgepole pine. While the appearance can be dramatic, the effect on trees is usually minor. Cool, wet spring weather during needle development is favorable for disease development. Approximately 12,000 acres of foliar diseases were mapped in 2020, compared to approximately 13,000 and 28,000 acres in 2019 and 2018 respectively. [Link to IDL Forester Forum](#)

# 2020 Fire Season



## Fire Activity in Idaho, 2020

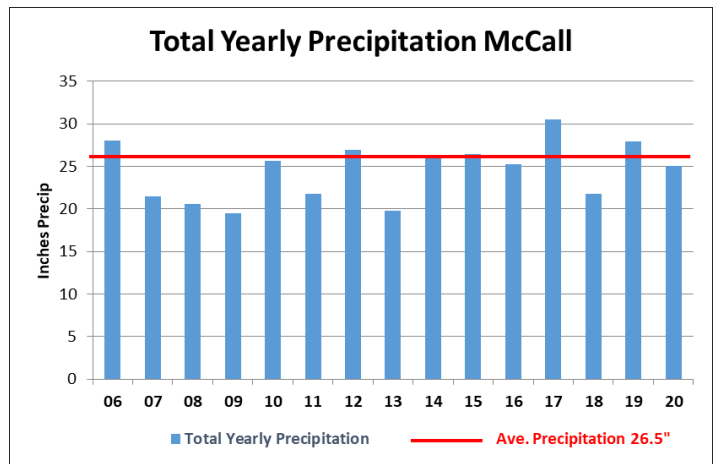
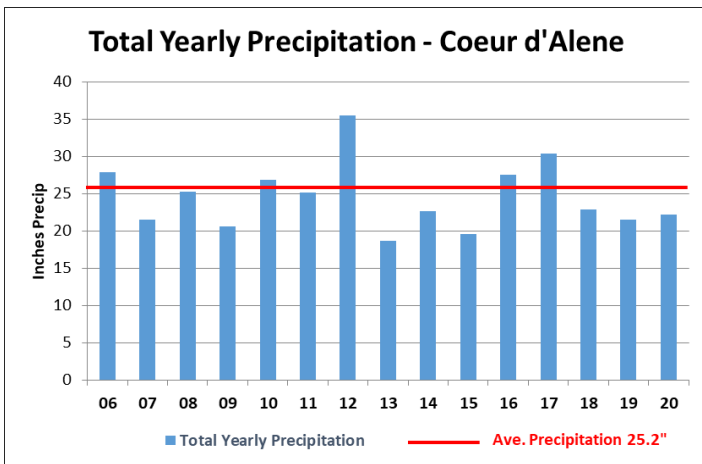
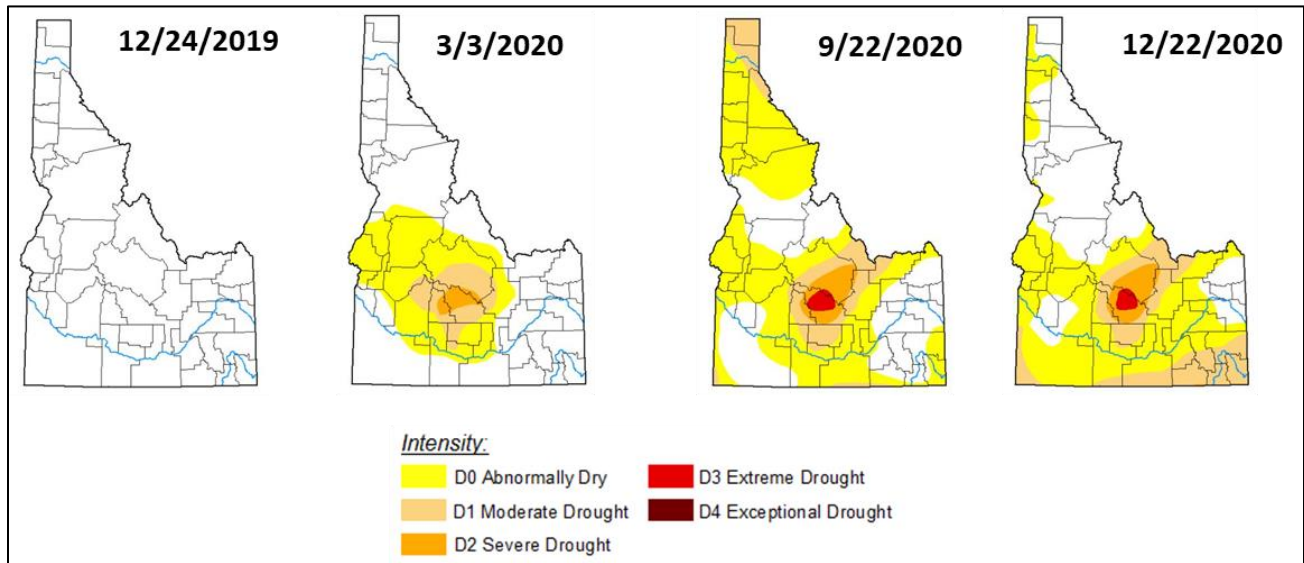
The total acreage burned in Idaho in 2020 was approximately 314,000 acres. A large percentage of these acres were in southern Idaho on rangeland.

[Link to NIFC 2020 Fire Statistics](#)



# Drought in Idaho

It is normal for Idaho to have summer droughts, where little precipitation falls from July into September. Snow is usually abundant in the winter months and spring rains occur during the growing season. Since 2013, six of the last eight years have had below average precipitation in the Coeur d'Alene area. In southern Idaho (McCall) precipitation has been near normal for six years during the same time period. The last several years have seen persistent drought in the Wood River Valley area of southern Idaho. Certain bark beetle species such as pine engraver (*Ips pini*), western pine beetle (*Dendroctonus brevicomis*) and fir engraver (*Scolytus ventralis*) tend to cause more problems for land managers during droughts. Trees weakened by drought are also not as able to recover from defoliation from defoliators such as Douglas-fir tussock moth and western spruce budworm. Douglas-fir tussock moth caused widespread mortality of Douglas-fir and grand fir in southern Idaho in 2018-2019. [Link to NOAA Drought Monitor](#)



# Douglas-fir Tussock Moth in Idaho 2018-2020

Douglas-fir tussock moth (DFTM) is a native defoliating insect found throughout the west. It feeds on grand fir, Douglas-fir and occasionally other conifers. Large scale outbreaks have occurred in Idaho regularly, happening about once per decade.

In southern Idaho, an outbreak started in the Smiths Ferry area (Valley and Boise Counties) and simultaneously near Craters of the Moon National Monument (Butte County) in 2017. Limited defoliation started in 2017 in both areas and increased markedly to over 100,000 acres in 2018. The Butte County outbreak was limited to approximately 100 acres on north facing slopes in older Douglas-fir. Defoliation was very heavy in the main outbreak area near Smiths Ferry, with many trees defoliated over 90%. Defoliation increased in 2019 to over 200,000 acres, though damage was not as severe as 2018. Defoliation stopped in these areas in 2020 but there was approximately 3,000 acres of light defoliation west of Cambridge in the Cuddy Mountain area and the outbreak is expected to collapse in 2021. Additionally, some current activity was noted near Driggs in 2020 in ground surveys, but the area was not flown and mapped in aerial surveys.

The last outbreak in northern Idaho occurred in 2010-2012 reaching over 100,000 acres at it's peak. Defoliation was mostly centered on the Coeur d'Alene Indian reservation and McCroskey State Park, but there was also defoliation south of Post Falls and on the Nez Perce-Clearwater National Forest north of Elk City. Defoliation returned to northern Idaho in 2020 with over 16,000 acres of defoliation in the Silver Valley east of Mullan, and east of Clarkia on industrial and state lands. Ground surveys indicate that the Silver Valley defoliation is declining, but the area east of Clarkia will probably expand in 2021.

For more information on Douglas-fir tussock moth in Idaho, please see the [Idaho Douglas-fir tussock moth report](#).



**Defoliation on Moon Pass, south of Wallace, September 2020**

## For More Information

### Idaho Department of Lands

3284 W. Industrial Loop  
Coeur d'Alene, ID 83815  
(208) 769-1525



### Forest Health Protection

USDA Forest Service  
Coeur d'Alene Field Office  
3232 W. Nursery Road  
Coeur d'Alene, ID 83815  
(208) 765-7342

and

Boise Field Office  
USDA Forest Service  
1249 Vinnell Way, Suite 200  
Boise, ID 83709  
(208) 373-4227



### Interior West Forest Inventory and Analysis

USDA Forest Service  
507 25<sup>th</sup> St.  
Ogden UT 84401  
(801) 625-5388