

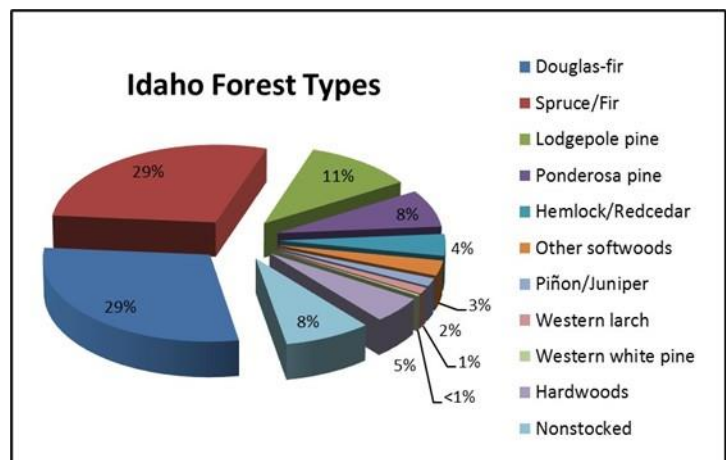
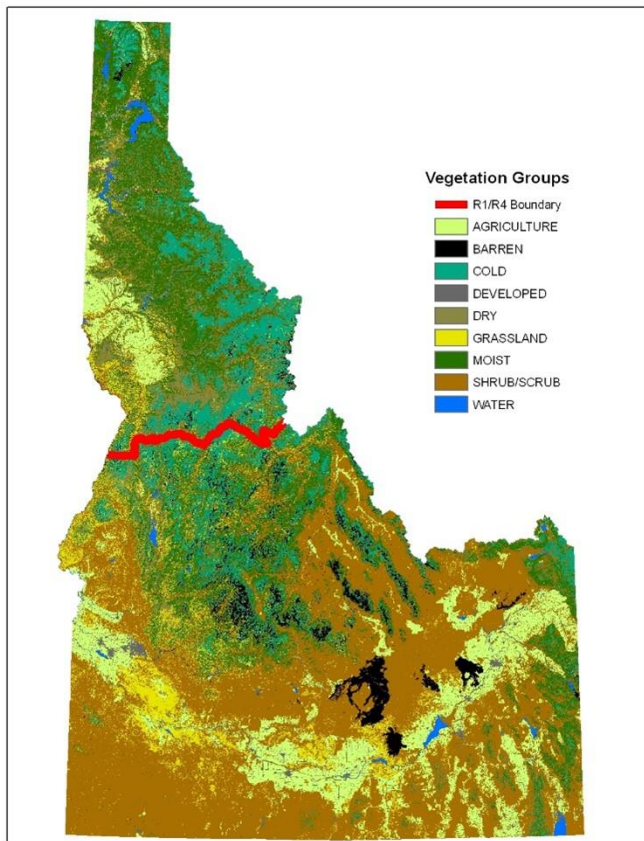
# Idaho Forest Health Highlights 2023

## 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.

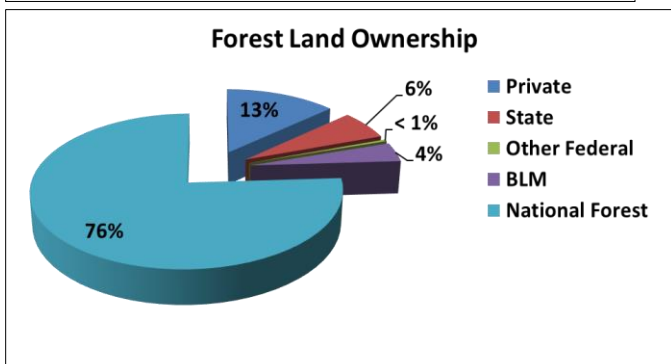
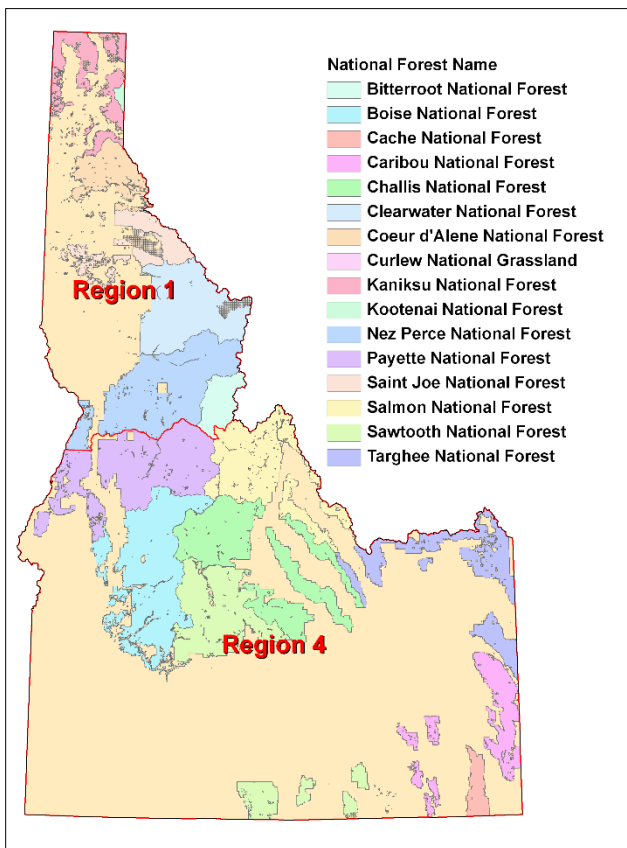


# The Importance of Idaho's Forests

Idaho's forests are important for many reasons. Forests provide a 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 very productive forest industry. The data for 2023 has not been updated yet, but in 2022, estimated revenues of wood and paper products totaled \$2.4 billion. An estimated 16,158 people were directly employed in the forest products industry and total harvest was estimated at 1.0 billion board feet of timber. An estimated 51% of this total came from private lands. State land provided 30% and federal lands provided 19% 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.](#)





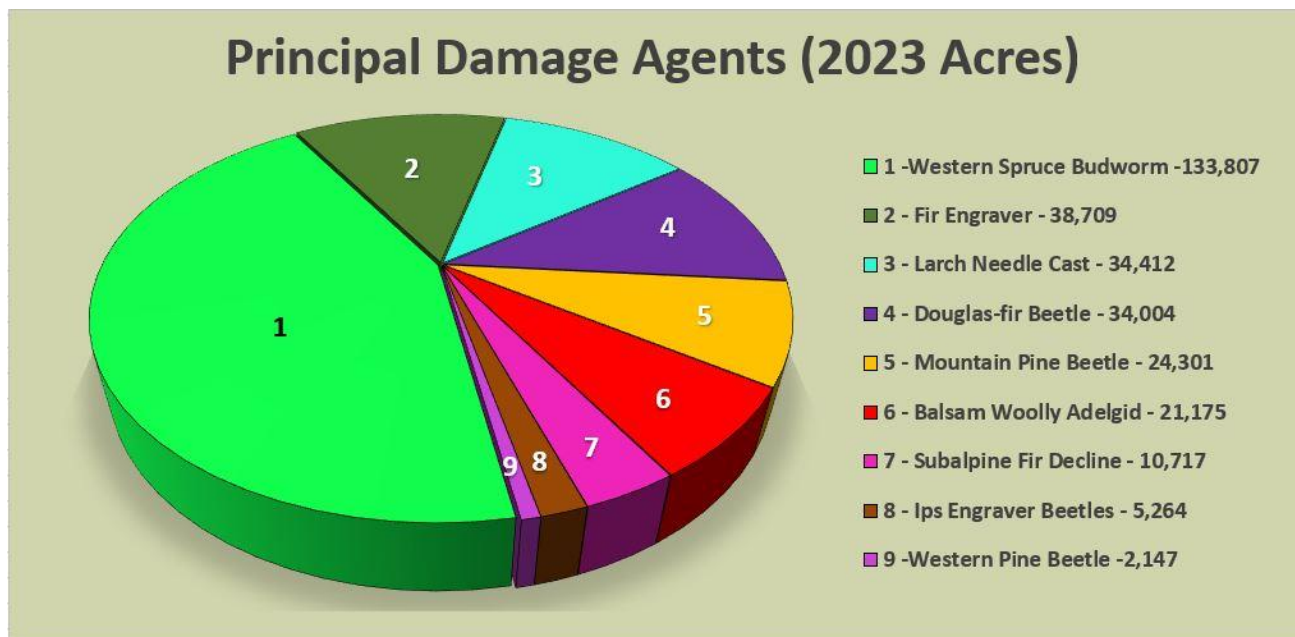
# Aerial Detection Survey Results

Approximately 27.6 million acres were flown in Idaho in 2023, as compared to 25.98 million acres in 2022, 18.74 million acres in 2021, 10.24 million acres flown in 2020, and 27.8 million acres flown in 2019. Total acres flown in 2020 and 2021 were lower due to Covid restrictions. For this reason, year to year comparisons of the number of acres affected by a given damage agent are flawed for 2020 and 2021.

## *\*Notes on Aerial Detection Surveys*

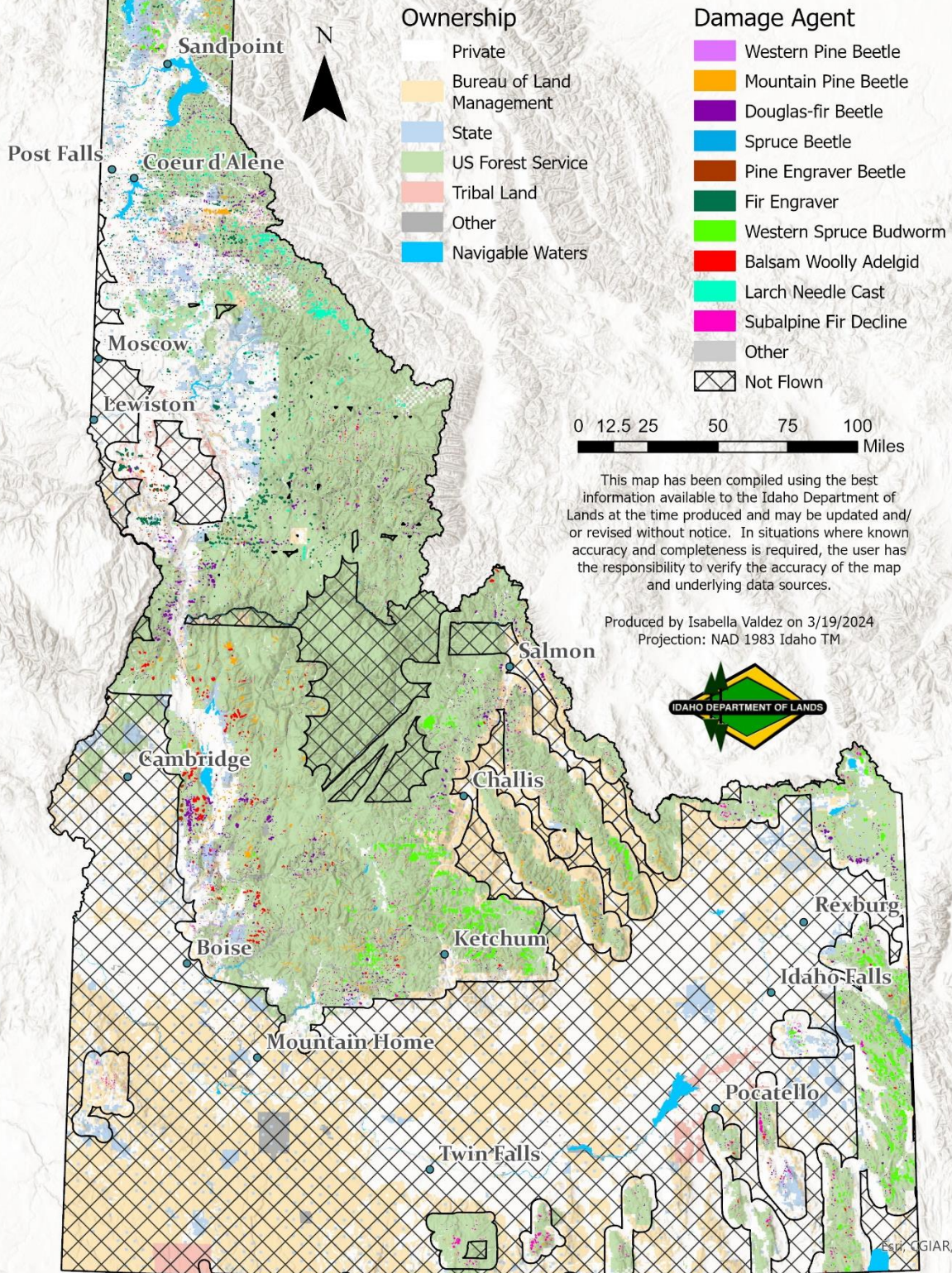
It is important to remember that trees attacked by bark beetles do not usually change color until the following year, so bark beetle mortality observed in 2023 actually represents trees that were attacked in 2022.

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 parasitic plants 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 it would be difficult to estimate affected acres. These diseases are generally not recorded in aerial surveys.





# Idaho Aerial Detection Survey 2023





## Bark Beetles

In 2023, Douglas-fir beetle caused mortality on over 34,000 acres. This is a slight increase compared to recent years. Douglas-fir beetle outbreaks were prevalent in southern Idaho near areas that had been defoliated by Douglas-fir tussock moth in 2018-2019 (Boise, Valley and Gem Counties). However, ground surveys found that although there were many red attacked trees in 2023, current Douglas-fir beetle activity in that area was dying down. In Southern Idaho, Douglas-fir beetle outbreaks were also prevalent north of Pinehurst and along Big Bend Ridge south of Island Park. In northern Idaho, an increase in Douglas-fir beetle activity was also expected due to the January 2021 windstorms that created an excess of blowdown for Douglas-fir beetle to exploit. This increase was observed, but at a smaller magnitude than expected.

Fir engraver mortality was observed on almost 40,000 acres, probably due in part to recent droughty conditions. Mountain pine beetle caused damage on over 24,000 acres in 2023, a large increase from the 6,000 recorded acres in 2022. Most of the mountain pine beetle-caused mortality was in lodgepole pine and high elevation pines, with very little activity recorded in ponderosa pine. Western pine beetle-caused mortality occurred on about 2,000 acres, and pine engraver-caused mortality occurred on over 5,000 acres in 2023.

## Defoliators

Western spruce budworm is a major defoliator of Douglas-fir and true firs in Idaho. In recent years, the vast majority of statewide western spruce budworm activity has taken place in southern Idaho. Roughly 134,000 acres of western spruce budworm defoliation were recorded in 2023. While the majority of the damage occurred in southern Idaho, about 11,000 acres of damage were mapped in the Idaho Panhandle in 2023, both in the Cabinet Mountains and the Selkirk Mountains. This is a significant increase in western spruce budworm activity in northern Idaho. Western spruce budworm outbreaks can be long lasting and negatively impact tree regeneration due to the insect feeding in the cones as well as on the foliage.

There was no recorded Douglas-fir tussock moth defoliation in 2023. In northern Idaho, the Douglas-fir tussock moth outbreak of just over 9,600 damage acres east of Clarkia and south of Avery collapsed in 2022. The Douglas-fir tussock moth outbreak in southern Idaho that caused defoliation on over 212,000 acres at its peak in 2019 has also collapsed. It is possible that some additional Douglas-fir tussock moth-caused defoliation occurred west of Cambridge in 2023, an area that had evidence of active populations last year, but this area was not surveyed in aerial surveys in 2023 due to wildfire smoke inhibiting visibility.

## Other Agents

Woodboring insects caused damage in many drought-stressed trees in 2023. Woodboring beetles do not typically kill healthy trees outright; the lasting effects of drought stress may have predisposed many trees to infestation and mortality. The majority of the damage was caused by metallic woodborers (beetles in the Buprestid family). Their preferred hosts were typically stressed Douglas-fir and larch. These damages were not recorded in the aerial survey, but damages were seen in many site visits on the ground. Topkill in larch was also observed on the ground, potentially caused by *Cydia laricana* (woodboring moth) or *Scolytus laricis*.

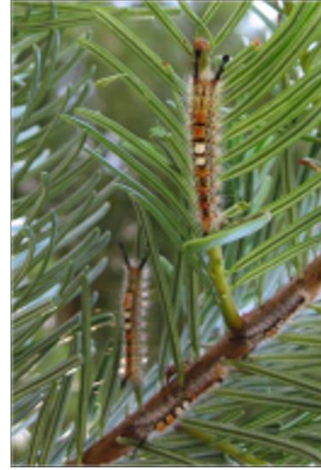
In 2022, increased spruce spider mite activity was reported across the state, including in Douglas-fir forests west of Council. Idaho. In 2023, no additional damage was observed, and most affected trees were recovering.

Balsam woolly adelgid, an invasive sucking insect, 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 and recorded almost over 21,000 acres in 2023, up from 8,000 acres in 2022. Balsam woolly adelgid may also be a factor in areas recorded as subalpine fir decline, but it is hard to confirm.

Approximately 35,000 acres were affected by larch needle cast in 2023, mostly in northern Idaho (Clearwater and Shoshone Counties). This is a major decrease from last year, during which favorable conditions for the pathogen in the spring resulted in about 114,000 acres of 2022 damage. Damage due to larch needle cast can appear very dramatic but is rarely a serious concern.

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

# Key Forest Insect Issues in Idaho



**Bark beetles** continue to kill susceptible trees in Idaho. Increases in bark beetle activity are often associated with drought and disturbance events. In 2021, Idaho experienced several strong wind events that resulted in green trees being blown down. These green down trees are easily exploited by some aggressive species of bark beetles and can boost bark beetle populations. Additionally, recent outbreaks of the Douglas-fir tussock moth defoliated many Douglas-fir and grand fir trees in southern Idaho, leaving stressed trees that are more attractive to bark beetles. [Link to IDL bark beetle 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. All across the state, outbreaks have collapsed. There was no recorded Douglas-fir tussock moth defoliation in 2023. [Link to IDL fact sheet](#); [Link to IDL 2023 Douglas-fir Tussock Moth Report](#)



**Spongy moth**, formerly known as gypsy moth, is an invasive defoliator that is already established in the eastern U.S, but not in the West. Idaho monitors for new introductions of this insect every year in order to prevent its establishment. Over 2,000 pheromone traps were deployed in Idaho in 2023, and one spongy moth was captured near Twin Falls. Follow up monitoring will take place in this area in 2024 to determine if eradication is needed. [Link to IDL 2023 spongy moth report](#)

**Western spruce budworm** is a major defoliator of Douglas-fir and true firs in Idaho, and outbreaks can be short-lived or chronic. Almost 135,000 acres of western spruce budworm activity occurred in Idaho in 2023, with notable activity on the Kaniksu, Caribou, Salmon, Challis, and Sawtooth National Forests. The 400 acres of defoliation in northern Idaho is a significant increase compared to activity recorded in the panhandle in recent years. [Link to IDL fact sheet](#)



# Key Forest Disease Issues in Idaho



**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 indicates, and they 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 IDL fact sheet](#)



**White pine blister rust** is an introduced disease that kills 5-needled pines (western white, whitebark, limber, and others) throughout 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](#)

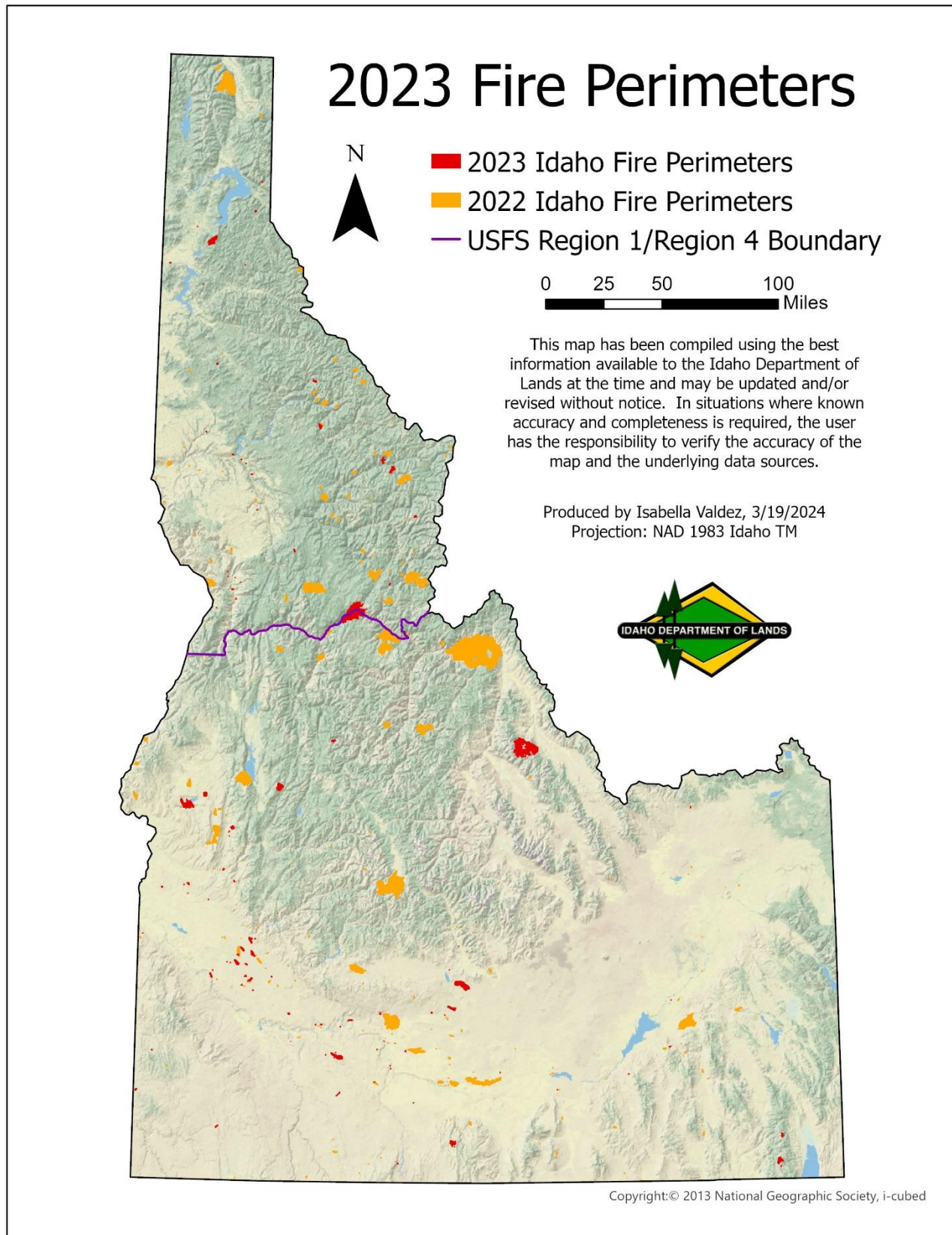


**Dwarf mistletoes** infect many species of conifers in Idaho. Most damage is on western larch, Douglas-fir, ponderosa and lodgepole pines. These parasitic plants reduce growth and over time can kill trees. Dwarf mistletoes are fairly host specific and can be managed through silviculture by removing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



**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. The number of acres affected by foliar diseases can vary widely from year to year. [Link to IDL fact sheet \(firs-larch\)](#) [Link to IDL fact sheet \(pines\)](#)

## 2023 Fire Season



### Fire Activity in Idaho, 2023

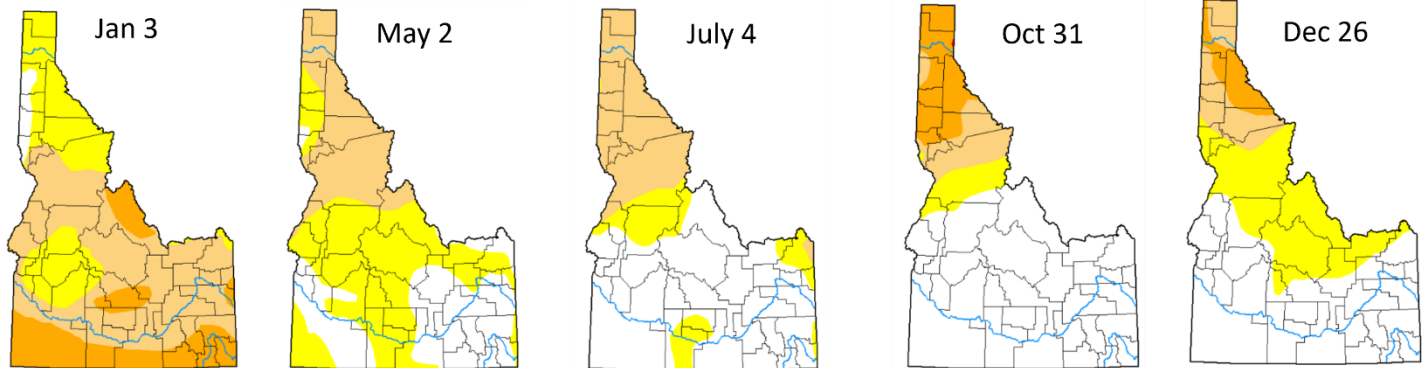
The total acreage burned in Idaho in 2023 was approximately 87,801 acres.

[Link to 2023 Fire Statistics](#)



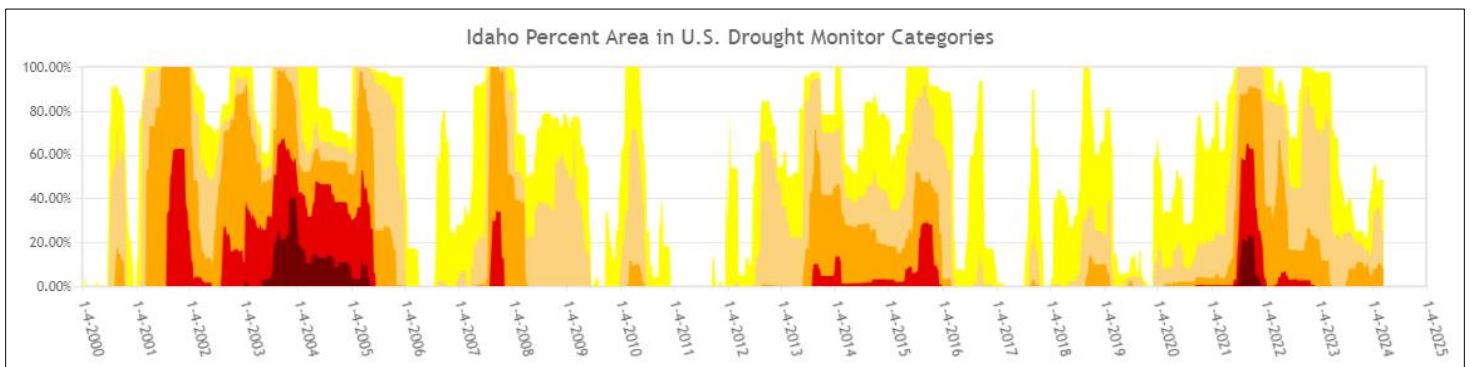
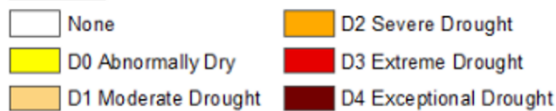
# Drought in Idaho

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. Northern Idaho experienced moderate to severe drought for most of 2023. 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 capable of recovery from defoliation by defoliators such as Douglas-fir tussock moth and western spruce budworm. [Link to NOAA Drought Monitor](#)



## 2023 Idaho Drought

### Intensity



## **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 Offices  
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