

2020 Wyoming Forest Health Highlights

In order to overcome the challenges brought on by the COVID 19 situation in 2020, a number of modifications were made by the forest health teams of the United States Forest Service (USFS) and Wyoming State Forestry Division (WSFD). To increase safety and minimize risk, field surveys, aerial survey flights and crew numbers were reduced. With limited personnel the only areas in Wyoming flown were the Bighorn National Forest, Black Hills area and a couple targeted missions on the Medicine Bow to look at areas with windthrow.

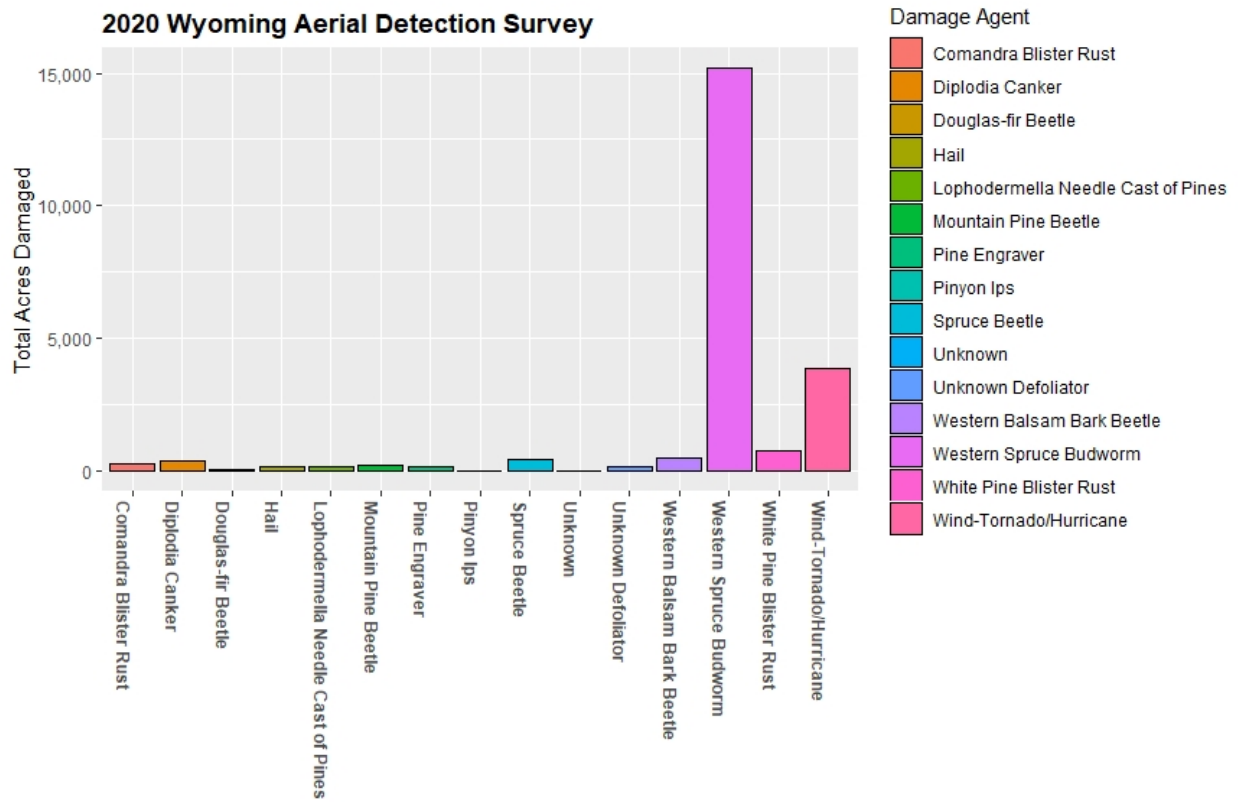


Figure 1. The total acres damaged by damage agent mapped by USFS aerial survey flights over the Bighorns and Black Hills in 2020.

Western Spruce Budworm



Figure 2. Severe defoliation by western spruce budworm in the southern Bighorns in 2019.

Western spruce budworm (WSBW) continues to be the most significant damage agent affecting the health of Wyoming forests. Field data and observations suggest that the number of acres defoliated by WSBW is similar to last year with similar intensity across the state. However, for the Bighorns 5,000 fewer acres were recorded by Aerial Detection Survey (ADS) in 2020 compared to last year. In 2019 169,000 acres were defoliated primarily in the southern Bighorns, Bridger Teton National Forest and some areas in the Absaroka Range. With another year of heavy defoliation (>30%), mortality is expected of mature trees. In susceptible stands of smaller trees, mortality is already occurring. WSFD continues to fund projects and work with county conservations/fire districts to mitigate the issue. In 2019, 516 acres were treated in the southern bighorns by WSFD for WSBW. In 2020, 73 acres were treated on Telephone Canyon and additional 254 were planned for the southern Bighorns by the Powder River Conservation District in conjunction with WSFD using state and federal funds.

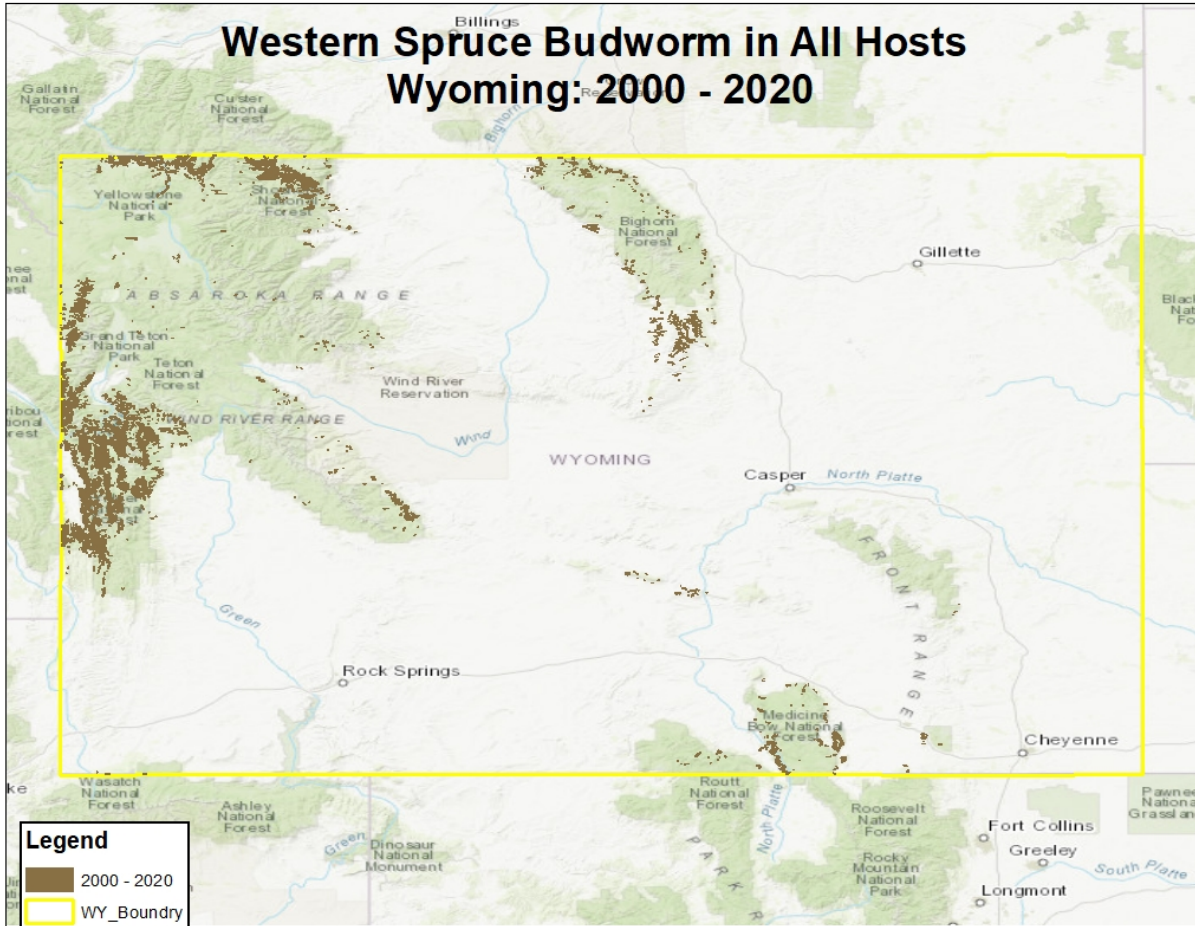


Figure 3. Western spruce budworm activity in Wyoming from 2000 through 2020. Not all areas are surveyed every year. Due to the nature of aerial surveys, this data will only provide rough estimates of location, intensity and the resulting trend information for agents detectable from the air. Many of the most destructive diseases are not represented in the data because these agents are not detectable from aerial surveys. The data presented should only be used as a partial indicator of insect and disease activity, and should be validated on the ground for actual location and causal agent. The insect and disease data is available digitally from the U.S. Forest Service, Region Two Forest Health Management group. The cooperators reserve the right to correct, update, modify or replace GIS products. Using this data for purposes other than those for which it was intended may yield inaccurate or misleading results. Map courtesy U.S. Forest Service & Wyoming State Forestry Division.

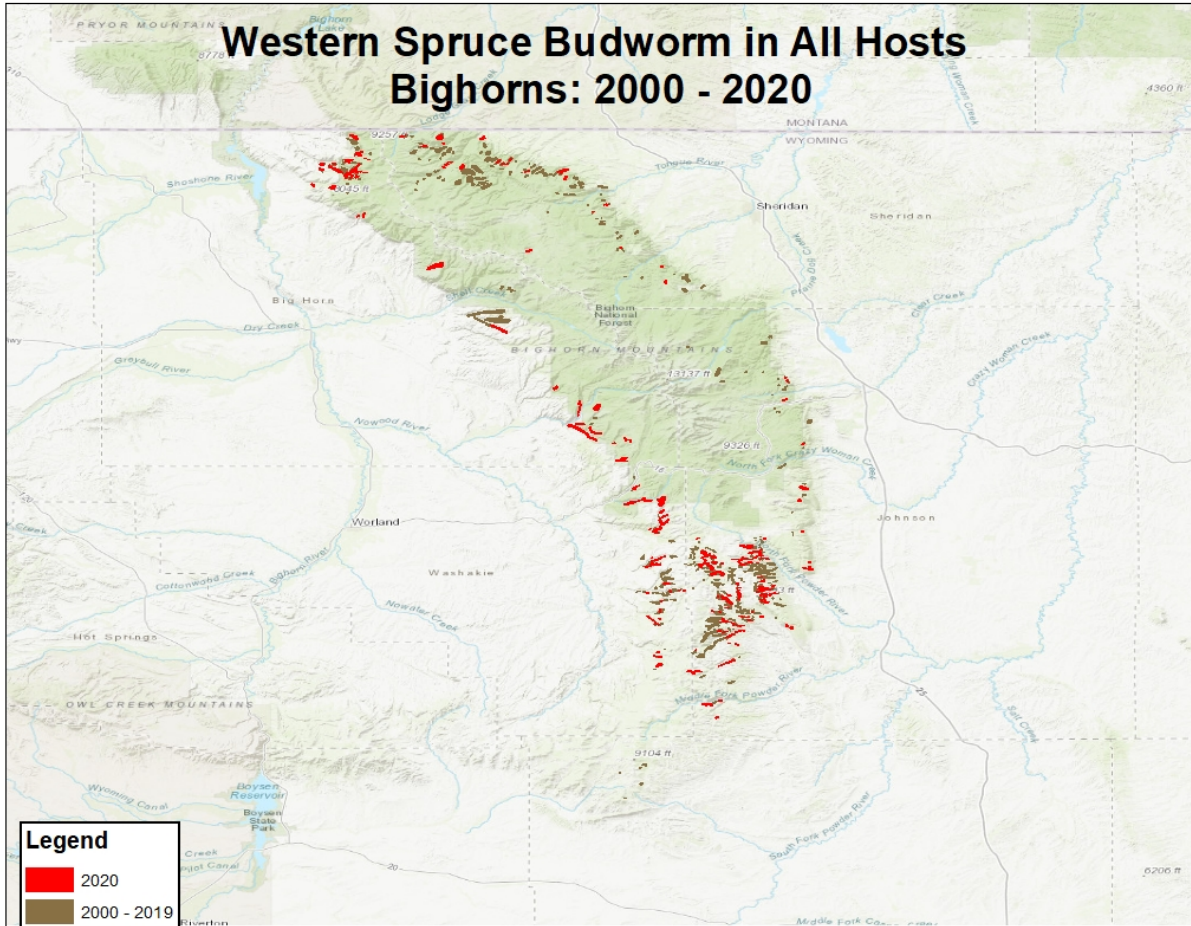


Figure 4. Western spruce budworm damage recorded by aerial survey flights in 2020 throughout the Bighorns. Not all areas are surveyed every year. Due to the nature of aerial surveys, this data will only provide rough estimates of location, intensity and the resulting trend information for agents detectable from the air. Many of the most destructive diseases are not represented in the data because these agents are not detectable from aerial surveys. The data presented should only be used as a partial indicator of insect and disease activity, and should be validated on the ground for actual location and causal agent. The insect and disease data is available digitally from the U.S. Forest Service, Region Two Forest Health Management group. The cooperators reserve the right to correct, update, modify or replace GIS products. Using this data for purposes other than those for which it was intended may yield inaccurate or misleading results. Map courtesy U.S. Forest Service & Wyoming State Forestry Division.

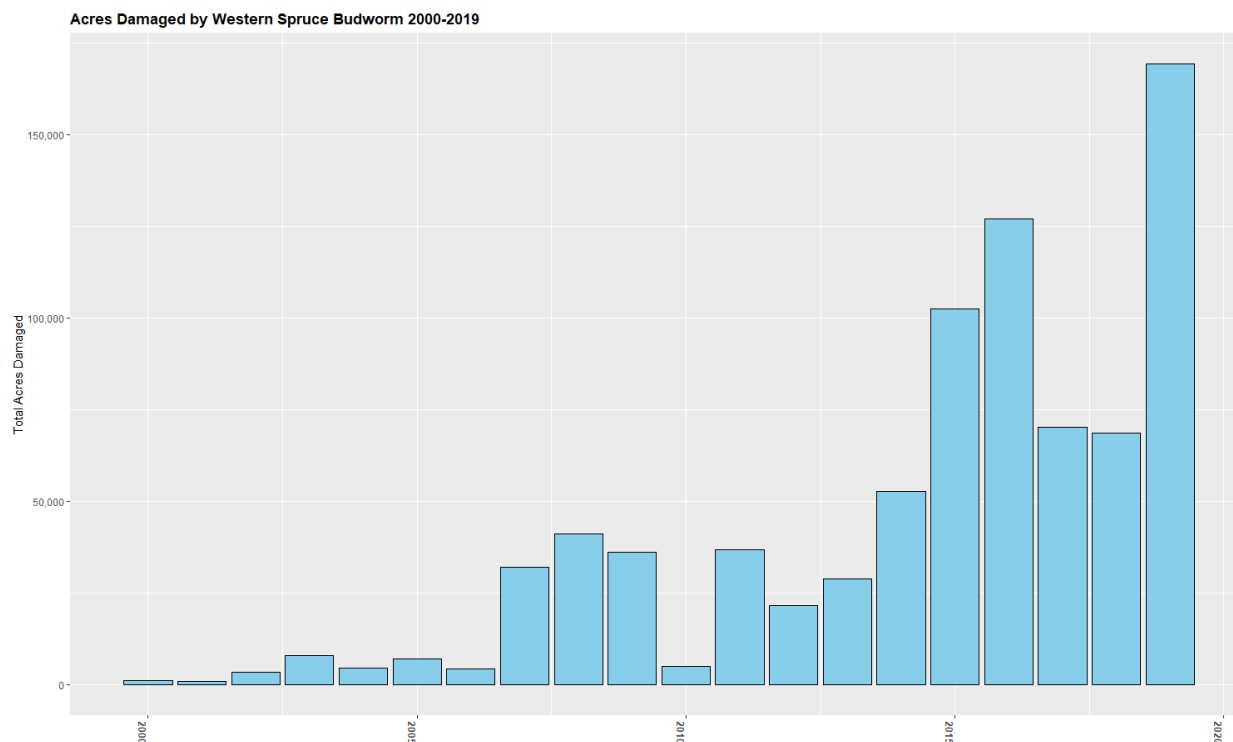


Figure 5. Total acres damaged by western spruce budworm by year from 2000 through 2019 recorded by aerial survey flights. 2020 damage was not included due to significant decrease in forested areas surveyed compared to previous years.

Bark Beetles

Bark beetle activity continues across Wyoming in small limited areas. Damage is primarily by spruce beetles to spruce forests in the Wind River Range, the Northern section of the Bighorn NF and in the Absaroka Range. In 2019, 22,800 acres of damage were recorded and based on field observations damage is similar an extent and location. 2020 ADS data showed an increase 348 acres in the northern part of the Bighorn NF. District 4 Wyoming State Forestry Division foresters noticed spruce beetle caused mortality near Good Neighbor Authority projects sites in the upper Green River Drainage. Mountain Pine beetle, Douglas-fir beetle, pine engraver and western balsam bark beetle caused small pockets of mortality in both the Bighorns and Black Hills. Observed mortality was low and resembled numbers seen in years with endemic populations.

Invasive Insect Monitoring

Trapping for invasive emerald ash borer and gypsy moth continued across the state in conjunction with United States Department of Agriculture Plant Protection and Quarantine. No positive identifications were made.

Surveys were done for the invasive insect balsam wooly adelgid in western Wyoming and no specimens were found. Many areas of subalpine fir appear to be declining without definitive cause. Balsam wooly adelgid primarily affects subalpine fir, grand fir and white fir. It is currently found in areas of Utah, Idaho and Montana near the western side of the state.

Japanese beetle



Figure 6. Japanese beetle adult
Photo Credit: David Cappaert, Bugwood.org

Japanese beetle adults were positively identified for the first time in Wyoming in 2020. Japanese beetle is a highly destructive non-native pest which originates from Japan. Originally detected in North American in 1916, it is now well established in states east of the Mississippi River and partially established in some states to the west including Montana, Nebraska and Colorado. It is a generalist pest with adults damaging over 300 ornamental and agricultural crop plants feeding on foliage, flowers and fruits. The larval stages also known as white grubs, feed on the roots of grasses and can be highly destructive to lawns, golf courses and pastures. The first detection was made in Sheridan's Kendrick Park and additional detection traps found beetles in two other nearby locations in Sheridan. The number of beetles caught doesn't indicate an established population, but the City of Sheridan is working to monitor and eradicate the insect.

Ponderosa Pine Decline



Figure 7. Ponderosa pine trees showing symptoms of winter injury and twig beetles in eastern Wyoming.

Ponderosa pine trees throughout the eastern half of the state continued to show symptoms of worsening condition and mortality. Currently symptoms are linked to twig beetle activity and winter injury. Many of the susceptible smaller trees have died. Larger trees are showing an increased amount of symptoms with mortality in some areas. High levels of damage and mortality have been observed around Esterbrook and Camp Guernsey. WSPD, USFS and Colorado State University are working together on research projects to better understand the issue and come up with effective management solutions.

Damage Agent	Acres Recorded	Change Since 2019
Comandra Blister Rust	258	NA
Diplodia Canker	387	15
Douglas-fir Beetle	32	27
Hail	151	NA
Lophodermella Needle Cast of Pines	140	NA
Mountain Pine Beetle	192	152
Pine Engraver	158	80
Pinyon Ips	0	NA
Spruce Beetle	410	348
Unknown	0	-16
Unknown Defoliator	180	NA
Western Balsam Bark Beetle	465	-163
Western Spruce Budworm	15191	-5006
White Pine Blister Rust	738	-94
Wind-Tornado/Hurricane	3848	3126

Figure 8. The change in acres damaged by damage agent from 2019 and 2020 for areas recorded by aerial survey.

- Table only compares the numbers from last year across the Bighorns and in the Black Hills to current year data.
- NA in the Change Since 2019 column indicates damage agents which were not observed last year and thus change data can't be calculated for.
- Pinyon ips is shown as zero because only a single tree was recorded in the Black Hills and acreage is rounded to the nearest whole number.
- Wind-Tornado/Hurricane damage was observed on the Medicine Bow where no wind damage was recorded last year and one area in the Black Hills near Riflepit Canyon, recorded at 3,500 acres.
- Comandra blister rust primarily affects lodgepole and ponderosa pine. It is quite damaging to seedlings, but pole-sized to mature trees often only experience branch or top kill. If the disease gets into the stem on the lower bole it can cause tree mortality. Recorded damage by Comandra blister rust was on the eastern side of the Bighorn NF on either side of Hwy 14.
- One observation of Lophodermella needle cast of pines was made along HWY 16 near Caribou Creek on the Bighorn NF. Lophodermella generally only results in short term growth losses. However, heavy years of continuous infection can cause tree mortality or leave trees predisposed to other damage agents. The impact/spread of Lophodermella will be determined by late spring and early summer precipitation this year.
- The non-native pathogen, white pine blister rust continues to affect limber pine and white bark pine trees throughout Wyoming.

For more information or for assistance, please contact:



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