

WYOMING 2012

Forest Health Highlights

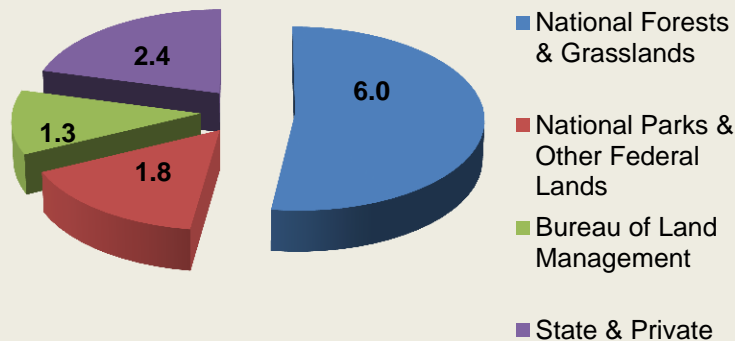


Fig.1 Lodgepole pine regeneration on Casper Mountain (Natrona Co.)
 Photo by Les Koch, Wyoming State Forestry Division

The Forest Resources

Wyoming has a land area of over 62.6 million acres with roughly 17 percent of this land area classified as timberland and two percent classified as woodlands. Timberlands are composed of tree species traditionally used in the forest products industry. Woodlands are composed of woody species that have not traditionally been used by industry but are important for other reasons. Lodgepole pine is the most abundant forest-cover type covering over 2.6 million acres of forest land, Second is spruce-fir at 1.8 million acres; third is ponderosa pine at 1.1 million acres; Douglas-fir, Engelmann spruce, and juniper each comprise eight percent of the area; aspen, six percent; whitebark pine five percent; and limber pine four percent. There are roughly 24,000 non-industrial private forest landowners in Wyoming

Fig. 2 Management and Acres (in millions) of Forestland in Wyoming



Total amount of Forestland Acres in Wyoming ≈ 11.5 million

Components of Change and Forest Health Issues/Concerns:

Drought and Bark Beetle Damage maps of Wyoming

There appears to be some correlation between drought patterns (Fig. 3) and bark beetle activity (Fig. 4) years later in forested areas of Wyoming. Map 1 shows GIS-based mapping approaches used to highlight the annual departures from normal precipitation (1971-2000) to precipitation in 2006 (map1). Red areas indicate the driest regions in the state and blue designates regions that received more precipitation (data provided by [PRISM Group, Oregon State University](http://www.wrds.uwyo.edu/sco/drought/drought.html)) & <http://www.wrds.uwyo.edu/sco/drought/drought.html>).

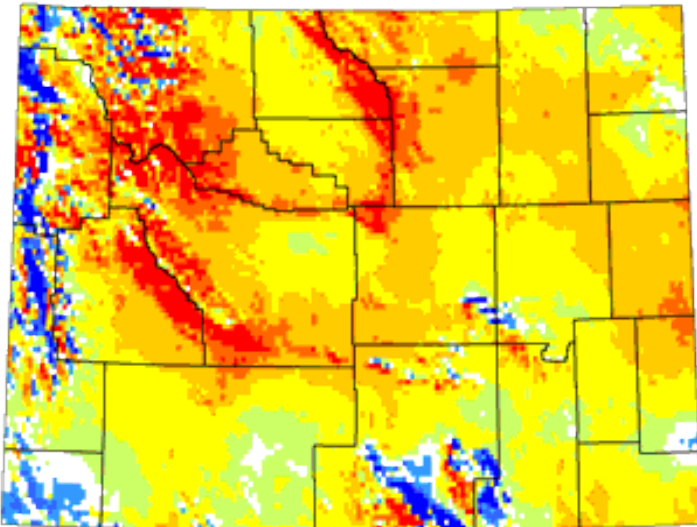


Fig. 3 Wyoming Drought Map 2006

Note the similar areas with severe drought and then 5 years later, forested areas with severe bark beetle activity

2011 Bark Beetle Activity in Wyoming

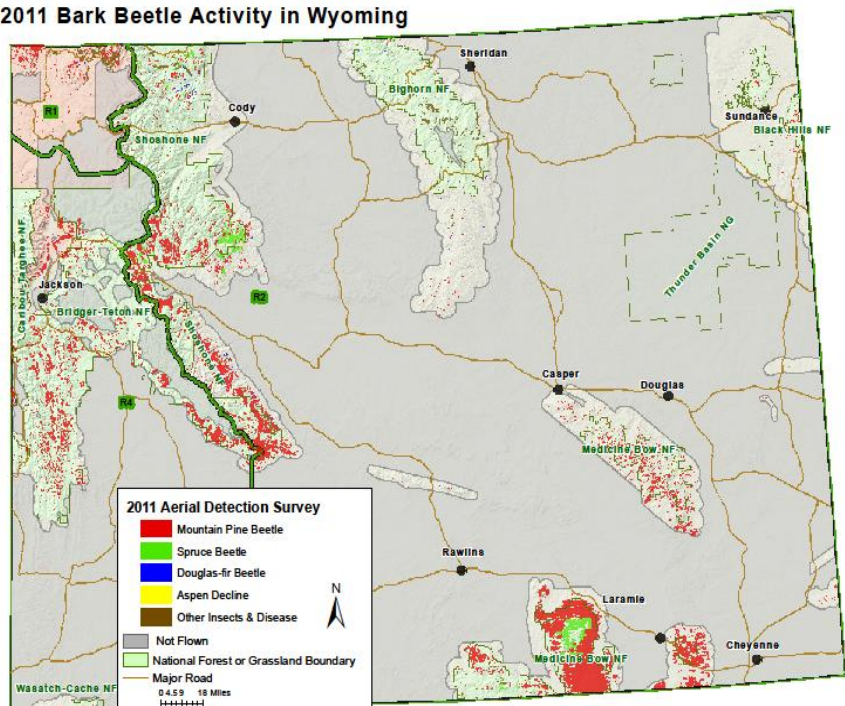
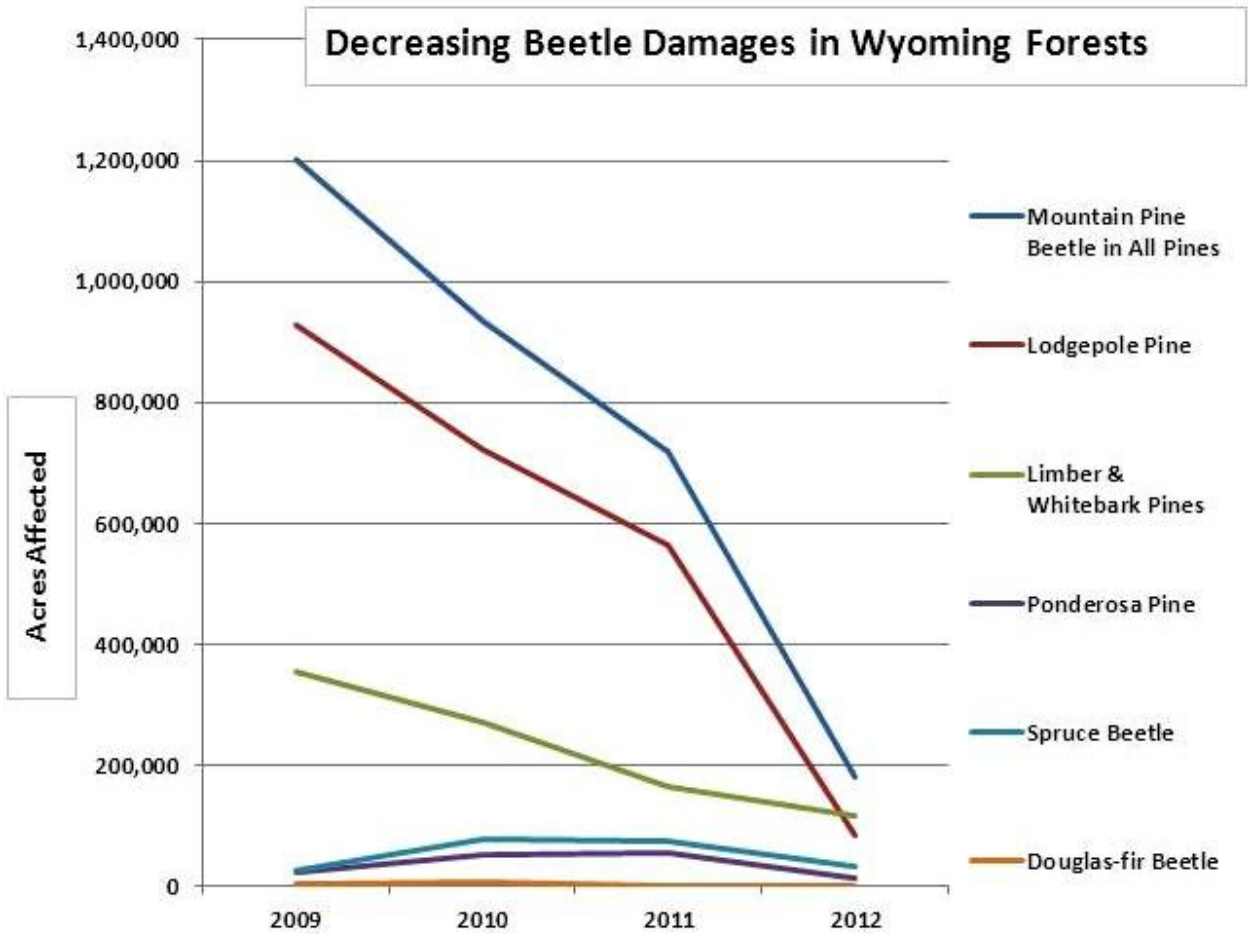


Fig. 4. Wyoming Aerial Survey Detection Map 2011

Due to the nature of aerial surveys, the data on this map 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 on this map because these agents are not detectable from aerial surveys. The data presented on this map 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 agents. Shaded areas show locations where tree mortality or debilitation were apparent from the air. Intensity of damage is variable and not all trees in shaded areas are dead or debilitated.

Fig. 5



The acres of beetle damages was less in 2012 (Fig. 5); however the spread of the beetles into new forested areas was the main Forest Health concern. Some of these spreading bark beetle outbreaks were even into urban areas close to the former beetle epidemics areas. During 2012, an additional 314,000 acres of tree mortality were detected across Wyoming bringing the total number of infested acres to roughly 3.3 million since the mid-1990's.

Additional acres of mountain pine beetle mortality were observed every year; however, the level of intensity such as acres affected and number of trees attacked continually waned compared to the preceding year. This trend occurred because the number of host trees available and suitable for attack was steadily decreasing every year.

Throughout the mountain pine beetle epidemic; ponderosa pine, lodgepole pine, and limber pine forest cover types were gradually showing fewer acres affected every year due to the smaller-sized age classes left behind from previous bark beetle attacks. This same dynamic held true for spruce forest cover types affected by spruce beetle and Douglas-fir forest cover types affected by the Douglas-fir beetle.

Bark beetle caused tree mortality has significantly affected the Medicine Bow National Forest, Shoshone National Forest, Uinta-Wasatch-Cache National Forest, and Bridger-Teton National Forest in addition to surrounding state and private lands. Roughly 63,000 acres of bark beetle mortality were observed in the Medicine Bow National Forest, particularly in the Snowy Range area. The Shoshone National Forest experienced a 69,000 acre increase in bark beetle tree mortality in lodgepole pine and limber pine forests. Mountain pine beetle susceptible hosts as small as five inches in diameter are currently being attacked and subsequently killed statewide. The Bridger-Teton National Forest also showed increases in bark beetle mortality in lodgepole pine and limber pine forests amounting to 71,000 acres. An ongoing mountain pine beetle outbreak continues to kill large amounts of ponderosa pine in the Black Hills in northeastern Wyoming (14,000 acre increase).

Limber pine stands statewide are being killed by white pine blister rust and mountain pine beetle particularly in the southern Bighorn Mountain range in northern Natrona County. Whitebark pine and limber pine on the Shoshone National Forest and Bridger-Teton National Forest are also being killed by an expanding mountain pine beetle epidemic as well as the spread of white pine blister rust. Douglas-fir beetle and spruce beetle outbreaks continue to increase in forest stands with sufficient susceptible Douglas-fir and Engelmann spruce. Drought conditions have led to the decline of shallow rooted mature spruce and infestations of Spruce Ips beetle and other detrimental insects in communities around the state. Spruce and pine trees in many communities are experiencing attack from Ips and mountain pine beetle.

Invasive Species

No invasive insects or diseases of national interest including European gypsy moth or Emerald ash borer were detected during 2012.

For further information on Forest Health in Wyoming:

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