Utah Forest Health Highlights

2021

Forest Resources

Utah landscapes are diverse, and visitors from around the world, together with locals, enjoy Utah's forests, which extends from deserts and canyons to the alpine zone.

While Utah is only 34% forested, these forests have high scenic, recreation, wildlife and other forest use values. In Utah's dry climate, healthy forests protect and enhance water quality and quantity, for a growing population.

Utah has a total of 18.3 million acres of forests. Most of those acres are administered by federal, state, and local agencies. About 2.9 million of the total acres are privately owned.

Detailed information on Utah's forest vegetation is available from Interior West Forest Inventory and Analysis (FIA). https://usfs.maps.arcgis.com/apps/MapJournal/index.html?appid=9bb22eed68944e1e89cca9e5eea8339d

Tree net growth and tree mortality estimates are based on FIA inventory 2006-2016, averageof all live trees 5.0 inches in diameter and larger on forest land in Utah. Tree mortality, averaged 256.7 million cubic feet. The averaged annual net growth of all live tree species on forested lands is 207.2 million cubic feet.

The difference between the gross growth and mortality results in a negative net annual growth estimate of –49.5 million cubic feet on forest land in Utah, which suggests that there has been more tree mortality, on average, than growth. The mortality that has contributed to this negative net growth is likely due to: drought, disease, past/current bark beetle outbreaks, and wildfire.

Components of Change

Several factors have contributed to the decline in forest health including historic logging, grazing patterns, and fire exclusion. Drought conditions can detrimentally affect forest health causing significant changes in vegetative conditions, particularly if combined with these other human-caused practices. Forest conditions throughout much of Utah are composed of dense stands that are relatively uniform in age. As species or age class composition changes due to large-scale insect outbreaks, large amounts of woody debris accumulate. Because of these alterations, many lower elevation forested landscapes are now susceptible to more severe wildfire. Although abundant spruce beetle induced mortality occurs in many spruce-fir high elevation sites, stand replacing

Bear Fire Utah 2021

wildfire intervals are much more infrequent than lower elevation sites and often driven by suitable fire weather. The main components of change in forests include wildfire, insect and disease outbreaks, and invasive insects, disease and plants.

The 2021 fire year reported 1,131 fires 570 were human caused and 561 were of natural origin. There were only 2 fires that burned over 10,000 acres. The Bear fire burned 12,165 acres, and the Flatt fire burned 14,366 acres. There were 3 fires over 1,000 acres, and many small fires. All totaled these fires made up 63,792 acres burned.

Forest Health Issues

Several factors have contributed to poor forest health in Utah: thick overgrown forests, expansive areas of single tree species, containing large trees, and other characteristics which make these forests very susceptible to bark beetle outbreaks. Other factors such as continuing drought, stresses the trees, making them even more susceptible to bark beetle outbreaks

Insects and disease are not the cause of forest health issues, but are the result of poor forest health. It is the poor health of our forests that induces insect outbreak. Hundreds of Utah communities are at risk to catastrophic bark beetle induced mortality. In 1997, approximately 2.2 million acres of Utah's forests were rated moderate to highly susceptible to bark beetle attack. Over the past 20+ years, many of the acres rated susceptible have been affected by bark beetle.

Aerial detection surveys (ADS) conducted by FHP provides the data used to describe forest pest status and trends in the state from year to year. Mortality trends are described in terms of acres affected, however, not all trees within affected acres are dead. The area of ADS coverage varies by year depending on need, resources, and flight restrictions. In Utah, due to COVID-19 protocols and travel limitations, there was no ADS done in 2020 and only partial ADS in 2021.

Mountain pine beetle (MPB) caused mortality in 2021 ADS affected 259 acres. Summit County had the majority of the MPB-caused mortality in lodgepole and limber pine.

Douglas-fir killed by Douglas-fir beetle (DFB) mapped in 2021 ADS showed a total of 1,038 acres affected.

Spruce beetle-caused Engelmann spruce mortality is still in outbreak mode, in 2021 with a total of 28,875 acres affected. The affected acres occurred mainly in Duchesne, Dagget, Summit and Uinta counties.

Fir engraver-caused mortality (primarily in white fir) statewide in 2021, mapped 645 acres affected. The largest acreage affected occurred in Salt Lake, Utah and, Sanpete counties.

Western spruce budworm (WSB) defoliation shows a total of 1,764 acres affected in the 2021 ADS survey.

Oystershell Scale (OSS)

Lepidosaphes ulmi

Hosts: *Populus* spp., *Salix* spp., *Fraxinus* spp., *Acer* spp.; over 100 hosts recorded. Primary hosts of concern in forested settings are trembling aspen and willows.

Oystershell scale (OSS) is a non-native hard scale insect that was introduced to north America over 300 years ago and is widely distributed throughout the United States, particularly in urban areas.

Oystershell scale very heavy infestation on aspen (Justin Williams, USDA Forest Service, For-

OSS was confirmed in an aspen stand on the Uinta-Wasatch-Cache National Forest in a drainage within Provo Canyon (Pole Canyon), Utah. Ground verification indicates that about 50 acres of aspen, of all size classes, are heavily infested with OSS, leading to tree mortality in some cases.

Invasive Species

Invasive species are non-native insects, diseases, or plants, which may become established, spreading rapidly, causing significant economic and ecological impacts to forest and urban trees.

Balsam woolly adelgid

Adelges piceae (BWA)

BWA is a tiny sucking insect that was introduced to North America from Europe and is a damaging insect of true fir.

BWA caused gouting on Subalpine fir branch

BWA white woolly masses on Subalpine fir trunk

In Utah, subalpine fir (*Abies lasiocarpa*) is a highly susceptible host tree; white fir (*A. concolor*) is also a host, but is more tolerant.

In September 2017 BWA was confirmed in Utah. It has since been confirmed in Box Elder, Cache, Rich, Weber, Davis, Morgan, Salt Lake, Summit and Utah counties.

Emerald ash borer(EAB)

Agrilus planipennis

EAB is an invasive beetle that attacks only ash trees. It may be one of the most destructive forest insects to invade the United States.

EAB photo by State.Sc.us

EAB was first detected in Michigan. It is thought to have been in wood packing material, imported from its native Asia. Since then, EAB has been found in more than 20 mid

In September of 2013, EAB was found in and around Boulder, Colorado. Since then, it has expanded outside of the city of Boulder, and perhaps throughout Boulder County.

To date, EAB has not yet been discovered in Utah. The transport of nursery stock and firewood or other woody materials, made of ash, may introduce it in the future. Evidence suggests EAB is generally established in an area for several years before it is detected. Traps are being placed throughout the state, in order to catch the beetles early and perhaps be able to keep them from establishment in Utah. (see USDA's EAB Pest Alert for more information).

Spongy moth

Lymantria dispar

Spongy moth is a non-native insect defoliator, which if established in Utah, would alter our hardwood forest landscapes, adversely affecting our high-value watersheds. Utah continues an aggressive monitoring program statewide, to catch potential infestations before they become established. although, one moth was trapped in 2016, but there have been no addition captures since.

Spongy Moth: female moth and caterpillar. Photo from Entomological Society of America. ento.org

Noxious Weeds are a continuing problem for all Western states. They have the ability to aggressively colonize disturbed habitats, displacing native plant species, and alter ecosystems.

As of 2013, approximately 338 species of exotic aquatic and terrestrial plants infest lands in the State of Utah. Currently, Utah has declared 54 of these species as noxious weeds.

The exact acreage of lands infested by noxious weeds is unknown; however, every county in Utah is infested by at least ten noxious weed species. Many species of exotic aquatic and terrestrial plants infest the State.

For More Information:				
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