



Utah Forest Health Highlights 2015

Forest Resources

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

While Utah is only 29% forested, these forests have high scenic, recreation, wildlife and other forest use values that make forest health very important. In Utah's dry climate, healthy forests protect and enhance water quality and quantity for a growing population.

Figure 1 summarizes forest cover, or forest type, on all land ownerships, using the latest annualized Forest Inventory and Analysis (FIA) surveys, from 2002 to 2011.

Over 15.1* million acres of forests are administered by federal, state, and local agencies. Another 3.0 million acres are privately owned.

Detailed information on Utah's forest vegetation is available from the Interior West FIA <http://www.fs.fed.us/rm/ogden/publications/utah.shtml>

* acres of forest type decreased slightly from the 2006 forest health highlight report because FIA annual reports were based on 10% forest cover rather than 5% forest cover used previously.

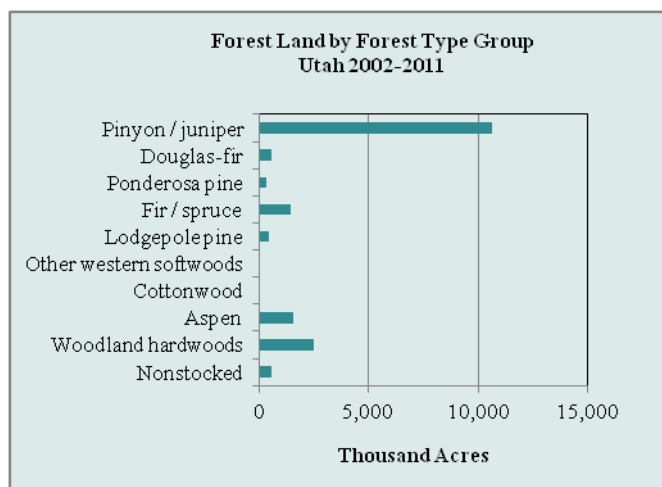


Figure 1

Components of Change

Several factors have contributed to the decline in forest health; including historic logging, grazing patterns, fire exclusion, and invasive weeds.

Drought conditions can harmfully affect forest health, causing significant changes in vegetative conditions, particularly if combined with other human-caused practices.

Figure 2 shows average annual net growth from 2002 through 2011. The total growth of all live trees on forested lands has averaged -4,556 thousand cubic feet per year, which suggests that there has been, on average, more tree death than tree growth.

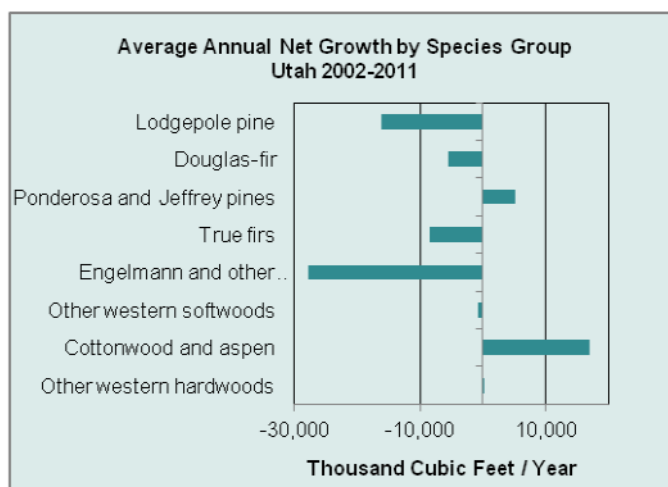


Figure 2

Figure 3 includes tree mortality, which has averaged 23,341 thousand cubic feet per year. Tree net growth and tree mortality estimates are based on the most recent 10 years of FIA inventory. However, this is not a complete representation of the state, and numbers will change as additional annual surveys are completed.



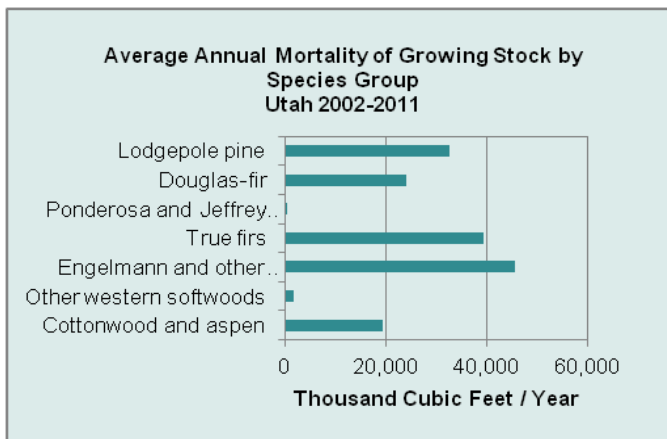


Figure 3

Forest conditions throughout much of Utah are composed of dense mature stands, that are relatively uniform in species and age. As species or age class composition changes, partly due to large-scale insect outbreaks, large amounts of woody debris accumulate.

Some of these changes, over time, may increase fire hazard conditions. Many lower elevation forested landscapes are infested with invasive cheatgrass, and are now susceptible to more severe wildfire.



**Lone Peak Hotshots
Utah Division of Forestry Fire and state lands**

Although abundant spruce mortality occurs in many fir/spruce high elevation sites, stand replacing wildfire intervals are much longer than lower elevation sites, which are often driven by suitable fire weather.

Fire activity in 2015 included 633 fires that burned 9,633 acres. Most fires in 2015 were small, with one of the largest being the Wheeler fire, burning only 640 acres. In all, a fairly mild fire season, likely resulting from monsoonal precipitation.

Forest Health Issues

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 19 years, many of the acres rated susceptible have been affected by bark beetle.

Mortality trends are described in terms of acres affected, however, not all trees on these acres are dead. Thus, an estimate of the number of trees killed is also provided. Not all forested lands are surveyed, and not all the same acres are surveyed every year.

Figure 4 summarizes 2015 aerial survey data for bark beetle induced tree mortality in Utah's forests.

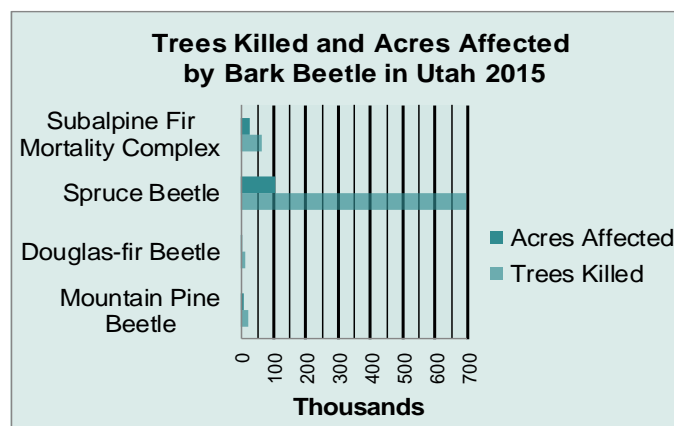


Figure 4

In 2015, insect and disease-caused tree mortality generally increased from 2014.

Mountain pine beetle induced mortality in all pine has declined significantly from 2014. However, mortality is still occurring within the lodgepole and limber pines.

Overall, Douglas-fir beetle induced mortality decreased by 45%, however, mortality is still occurring statewide.

Spruce beetle induced mortality increased by 25%, the number of spruce trees killed in 2014 was 555,435; in 2015 the number killed was 696,043.

Fir engraver induced mortality (primarily in white fir) decreased by 75% statewide. Subalpine fir tree mortality increased slightly in 2015, and was seen in nearly all counties statewide.

Western spruce budworm defoliation increased by 42% in 2015.



**Douglas-fir beetle induced mortality
Willow Basin 2013**

Aspen decline is largely caused by continuing drought, a complex of canker diseases, and insect borers. It also appears that defoliators play a role in some areas.

Increasing aspen decline has been mapped since 2003. Damage peaked in 2007; at 126,000 acres affected. However, Utah is still experiencing significant aspen decline, with approximately 26,230 acres affected in 2015, which is up 29% from 2014.

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. Not all introduced species are invasive.

Gypsy 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. Gypsy moth has not been detected in Utah since 2008.

Emerald Ash Borer (EAB) is an invasive pest that attacks only ash trees. It may be one of the most destructive forest insect to invade the United States.

In 2002, 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-western and eastern states, killing more than 50 million ash trees.



Emerald Ash Borer adult and gallery pattern.

Image by Eric R. Day, Virginia Polytechnic Institute and State University, Bugwood.OR.

In September of 2013, EAB was found in Boulder, Colorado. It is currently known to be outside of the city of Boulder, and perhaps throughout Boulder County.

EAB has not yet been discovered in Utah. The transport of firewood or other wood materials, made of ash, may introduce it into Utah.

There is evidence suggesting EAB is generally established in an area for several years before it is detected (see [USDA's EAB Pest Alert](#) for more information).

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



Musk Thistle

Photo Courtesy of BLM

Several state and federal agencies have the responsibility for monitoring and controlling noxious weeds.

As of 2013, approximately 338 species of exotic aquatic and terrestrial plants infest lands in the State of Utah. Currently, Utah has declared 27 of these species as noxious weeds. However, more recent discussion suggests, that the number of noxious weeds, declared in Utah, may change significantly in the very near future.

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.



Uinta Mountains in fall

For More Information:			
	<p>Department of Natural Resources Forestry, Fire & State Lands 1594 W North Temple Salt Lake City, UT 84114-5703 801-538-5555</p>		<p>USDA Forest Service Forest Health Monitoring Program 324 25th Street Ogden, UT 84401 801-625-5162</p> <p>Interior West Forest Inventory & Analysis 507 25th St Ogden, UT 84401 801-625-5388</p>