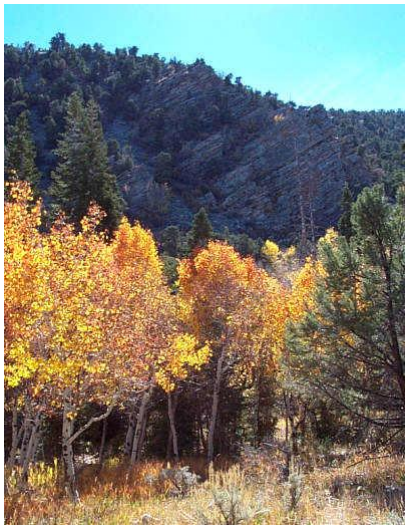
Nevada Forest Health Highlights 2017



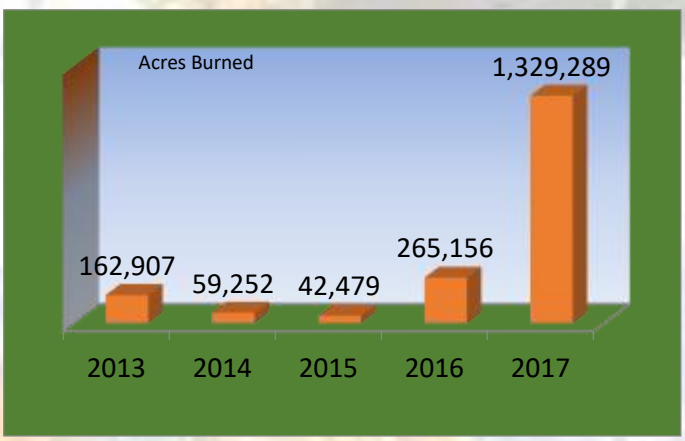
The Forest Resource

Nevada is unique in its forested component among the western states. The state is characterized by 314 forested mountain "islands" separated by wide non-forested basins. Eighty-six percent of the state is non-forest and about 83 % of the land is federally owned. Although the area of forest land is relatively small, the value of this resource is immeasurable in terms of commodities, recreational uses, and aesthetic properties. Healthy wildland and urban forests provide multiple benefits for Nevada's diverse population. Although only a small proportion of Nevada's 11.1 million acres of forestland produces commercial timber, it does provide other wood products, watershed protection, and wildlife habitat and recreation opportunities. Together with the urban forests in the state's communities, Nevada's forests are a critical resource in this sparsely forested state.

The majority of the forested lands are publicly owned (92%). Approximately 866,989 acres of forest land are in state and private ownership (using SW Regap data with the BLM 2007 land status layer data). From a statewide perspective, the majority (76%) of Nevada's forests are composed of pinyon and/or juniper species. Other forest types are restricted to the riparian areas and higher elevations in the state's 314 mountain ranges. Detailed information is available from the Interior West FIA.

Components of Change

Nevada's forests are host to several common pests which plague Western forests. Widespread stress to the trees - brought on by drought conditions - weaken individual trees creating favorable conditions for the pests. ***Wildfire*** is a major change component for Nevada's forest and rangelands. The year 2017 was a saw a large acreage burned from the previous past five years. Approximately 1,329,289 acres were burned in 2017 as compared to 265,156 acres in 2016. The majority of the wildfires occurred in sagebrush ecosystems, but approximately 25% of this burned acreage did affect pinyon/juniper woodlands. Very little mixed conifer forestlands were burned in 2017.



Forest Health Issues

In 2017, the estimates of mortality caused by insect outbreaks have increased slightly from 2016 levels. Total insect and disease damage recorded was 13,925 acres statewide, which is an increase of 80%. Aspen decline and dieback caused the most damage statewide affecting 2,781 acres. Aspen Leaf Spot and dieback has been detected by aerial surveys in the west since 2003 and is caused by several agents including drought stress, insects, diseases, fire exclusion, and grazing by animals.

Damage from Mountain beetle was recorded on 2,327 acres affecting lodgepole, limber, whitebark, western white, and bristlecone pine. Fir Engraver beetle

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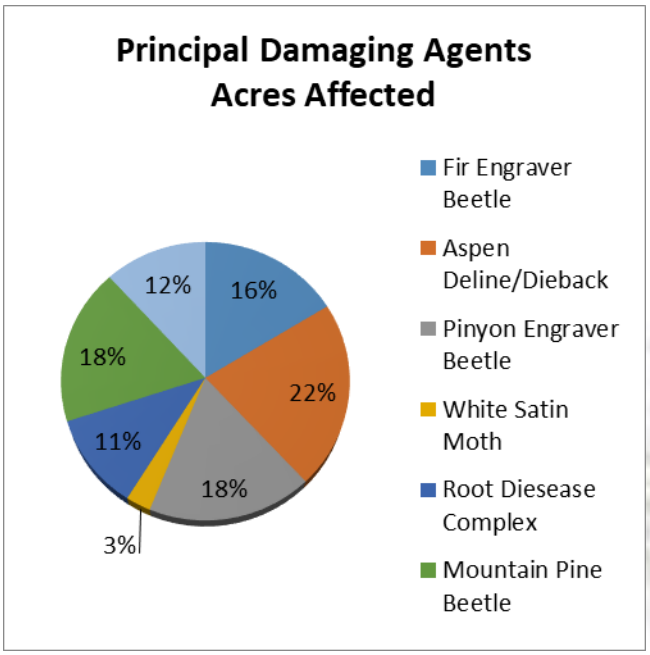
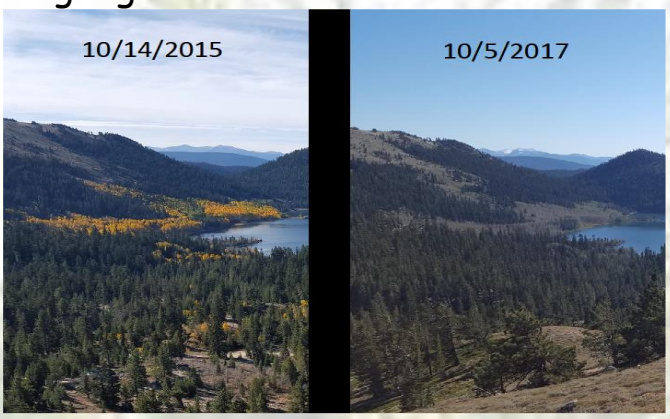


damage increased in 2017 and affected 2,083 acres in the mixed conifer forests statewide. Pinyon engraver beetle and pinyon needle scale increased as well, and caused damage to 2,314 and 1,511 acres of damage respectively. This is still to be considered fairly endemic damage with no substantial outbreaks recorded. Root Disease complex affecting white fir and sub-alpine fir also increased to 1,416 acres. This complex is mainly caused by Annosum root disease, western balsam bark beetle, and other wood borers. The majority of this damage was confined to the Jarbridge Mountains, in northeast Nevada.

White Satin Moth continues to be detected throughout Nevada with the greatest impact being in Lake Tahoe Nevada State park (LTNSP). Aerial surveys detected only 350 acres statewide with 226 acres being heavily defoliated in LTNSP. Some areas within the state park had greater than 75% defoliation, with additional small areas of tree mortality. Native aspen and cottonwood stands were equally defoliated in and around Marlette Lake within the state park. Adjacent stands within a 2 mile radius also had defoliation of at least 30%-50%. Monitoring and trapping was established, and will be continued in 2018. A statewide resource team is researching the need of implementing a control project for the moth, which will require joint cooperation with the USFS.



Damage 2015 vs. 2017, Marlette Lake, Nevada.

Forest Health Project Highlights

The Nevada Division of Forestry has been very active statewide in 2017, preparing and implementing forest health projects on both private, county and state park lands in Nevada. The next phase of an ongoing 35 acre project in Big Bend State Park along the Colorado River was initiated by removing dead and dying mesquite trees to promote the surviving mesquite trees within a 2015 wildfire scar. Trees are reestablished and are flourishing. Additional campground treatments to remove salt cedar are ongoing. Native tree and plant species have been replanted to and are doing very well with high survival rates.

Projects using Western Bark Beetle Grant funds were completed on 9 private, county, , and state parks parcels, which completed restoration work on 146 acres. Projects varied in size and treated multiple insect in disease problems ranging from bark beetle control, removal of damaged trees, dwarf mistletoe removal, pinyon engraver management, salt cedar eradication, as well as thinning to improve species composition and tree stocking levels. Monitoring projects are being designed for planting restoration projects to monitor native plant growth and planted native tree survival.

The Nevada Division of Forestry worked cooperatively with the City of Sparks, and Washoe County Parks & Recreation on planning and implementing projects in urban parks and dispersed recreation areas. These projects involved hazard tree removal, thinning maintenance of overstocked areas, pruning for insect, disease and wind damage, and a juniper mistletoe reduction project. These two projects were completed on 67 acres.

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The Nevada Division of Forestry implemented two pilot projects involving salt cedar eradication on two separate parcels, located along the Virgin River in southeast Nevada. Lands owned by Clark County, and a private landowner were to have salt cedar removed via equipment owned by the Nevada Division of Forestry, and it's Forest Products Program. These parcels have been invaded by salt cedar within this important riparian woodland causing an ecological shift from native trees and plants to exotics. Two Caterpillar skid steer machines with masticating heads were used to cut and masticate the salt cedar. Follow up treatments using herbicide will also help control the re-sprouting of the salt cedar. Planting of native cottonwood, coyote willow, and gooddings willow will also occur via pole planting in these riparian areas. Residual native cottonwood and mesquite were protected during treatment activities. This project was implemented in January, 2018 and proved to be a success using the specified equipment.

Skid Steer Masticator in Action

Production rates and costs were determined as well for future projects in this type of situation

Completed Treatment Area

Future projects are planned that will use this equipment and are funded by existing grant funds. A large scale restoration project along the Virgin River is being proposed with hope of funding being acquired through the LASR program.

Statewide Trapping Program

The Nevada Division of Forestry cooperates with the Nevada Department of Agriculture in conducting the trapping and monitoring of native and non-native insects. The Nevada Division of Forestry mainly traps native bark beetle populations to monitor trends and populations. The focus is placed on mountain pine beetle, pine engraver, western pine beetle, and fir engraver beetle. In 2017 White satin Moth trapping and monitoring began in the Lake Tahoe Basin due to the impacts to native aspen and cottonwood stands.

Three sites are selected statewide for the bark beetle surveys, based on stand species composition, elevation, and risk of potential outbreaks. Six, four-funnel lindgren traps were serviced every two weeks and samples were sent to the Nevada Department of Agriculture. Recent year's populations and trends have remained fairly consistent with only endemic populations being present. This has also been the norm that has been observed in the past three years of aerial surveys.

Nevada Department of Agriculture conducted Asian defoliator, exotic wood borer, gypsy moth, palm commodity, and pine shoot beetle surveys.

The Asian defoliator survey sites were selected based on host availability, use and/or risk of introduction. During the 2016 season (June 2016-September 2016), 66 traps were placed at 22 sites, serviced and removed. All traps were negative for target pests. During the 2017 season, 343 traps were placed at 103 sites. The traps were serviced three times, around once a month, and then were removed September 2017 for a total of five visits. All suspect specimens were negative.

The exotic wood borer survey had nine sites selected and four sites for the exotic light trap survey. Sites were selected based on high potential risk of introduction and/or observed damage indicative of target pests. Also, sites that had not been previously surveyed were favored.

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Two, four-funnel lindgren traps, with appropriate lure(s), were placed at each exotic wood borer monitoring site, for a total of 20 traps. Each trap was serviced as close to every 30 days as possible. At each service a sample was collected and lures were changed if necessary. Samples are currently being processed and at this point all collections are negative. Four sites; Carson City , Storey County, Washoe County, and Lyon County, were selected to conducted light trap surveys. Each site was visited four times, during May through August, for a total of 16 visits. At each visit, two traps, a mercury vapor light and a fluorescent UV light, were set up at sunset and monitored until midnight or until temperatures dropped below 50 degrees Fahrenheit (10 degrees C). During the survey pictures were taken and samples collected. All suspect specimens collected were negative.

The Gypsy Moth survey was conducted and set 235 delta traps with a lure for European and Asian gypsy moths. Traps were placed in all 17 counties in Nevada. Traps were placed in May and June and removed in Sept. and Oct. All traps were determined to be negative.

The Palm Commodity Survey is very important in southern Nevada due to the amount of palms used as landscape and park trees. In 2017, 120 traps were placed in Clark County near Las Vegas; 40 bucket traps, 40 Jackson traps and 40 blue sticky traps. The bucket traps were split between two different approved lure combinations, 20 each. The traps were placed in areas not previously surveyed and near host trees. Traps are serviced as close to every 30 days as possible. At each service, samples were collected if a suspect was found and lures were replaced if necessary. All samples collected were negative.

The Pine Shoot Beetle Survey consisted of 11 traps in six Counties in Nevada. Sites that were previously not surveyed, have a high probability of introduction and/or have valuable resources to protect were targeted. Each trap was serviced as close to every 30 day as possible. At each service a sample was collected and lures changed if necessary. All traps have been picked up and all data was recorded and maintained. Samples are currently being processed and no positive pests have been detected at this point.

Mediterranean Pine Engraver was positively identified within and around Las Vegas in 2016. In 2017, additional trapping of this exotic pest was found south and west of Las Vegas. It has been found in single leaf pinyon and non-native Aleppo pine which is a widely planted shade tree. The extent and damage from the beetle is being closely monitored and any management guidelines or treatments will be coordinated with the Nevada Department of Agriculture.

In 2017, the Nevada Division of Forestry investigated five possible invasive bark beetle sightings. As of this time the site visits did not find any evidence of invasive species being present. The Nevada Division of Forestry continues a cooperative effort with the Nevada Department of Agriculture. This positive working relationship allows both agencies to coordinate and expand their efforts to quickly identify and manage these invasive species.

For More Information:

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