

ARIZONA FOREST HEALTH HIGHLIGHTS FOR 2020



Photo credit, Aly McAlexander, DFFM Forest Health Specialist

HIGHLIGHT REPORT ON THE HEALTH OF ARIZONA'S FORESTS

A publication by the Forest Health Program of the Arizona Department of Forestry and Fire Management

Arizona is a state with incredible landscape diversity that ranges from the lower Sonoran Desert scrub and pinyon-juniper woodland to the high elevation spruce-fir forests.

Forests cover roughly 27% of the state and occupy 19.4 million acres. These forests are comprised of 37 species of coniferous and hardwood trees.

Annually, the Department of Forestry and Fire Management partners with the USDA Forest Service to survey millions of acres of forest and woodland resources from the air. The Aerial Detection Survey (ADS) provides land managers and the public with information about landscape-level forest and woodland health conditions. This report uses information from our more in-depth Forest Health Conditions Report and discusses major highlights from the past year.

81,000 acres of bark beetle-caused tree mortality

Increase in MPE Activity in Phoenix Metropolitan

The spring of 2020 experienced near average precipitation, which led to an 82% decrease in total acres of bark beetle-caused tree mortality. The majority of bark beetle damage occurred in ponderosa pine forests on Federal lands (Fig. 1). Although the spring precipitation helped decrease bark beetle damage for the summer of 2020, increases in damage caused by forest insect defoliators and sap feeding insects occurred. It is worth mentioning that although the 2020 spring precipitation was adequate, the summer hardly experienced any monsoonal moisture, which increased abiotic stress caused by drought. Along with this lack of monsoonal moisture, we are experiencing a La Niña winter. The National Oceanic and Atmospheric Administration estimates a 95% chance La Niña will last through the winter and will be relatively strong; this means the southern United States will experience warm and dry winter conditions (<https://www.climate.gov/enso>). Due to this lack of monsoonal moisture and La Niña winter conditions, many forest health professionals noticed increasing mortality from bark beetles in the fall and winter of 2020.

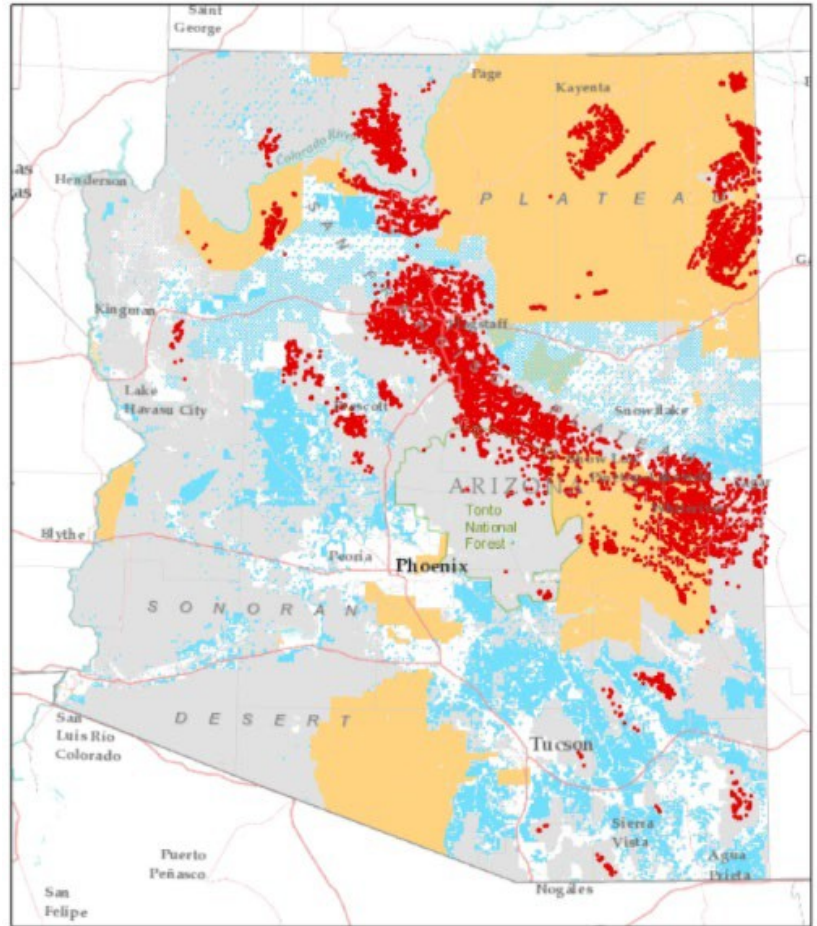


Figure 1. 2020 Aerial Detection Survey results for Arizona. Forest areas with damage caused by insects and diseases are shown in red.

Overall, much of Arizona’s forest health conditions improved from the last several years, but due to the lack of monsoonal moisture and the La Niña winter conditions, Arizona will likely experience worsened forest health conditions in the 2021 ADS season.



The Mediterranean pine engraver (*Orthotomicus erosus*), or MPE, was first discovered in the Central Valley of California in 2004. This non-native bark beetle has steadily spread to other regions in the Southwest. In 2018, monitoring traps were established in the Phoenix metropolitan area (Fig. 2) to determine if the bark beetle was present with two of five traps locations having positive results. In total, 337 beetles were trapped in 2018 (332 - Roadrunner Park; 5 - Comanche Park). In December 2018, live MPE were detected in dead Eldarica pines (*Pinus eldarica*) just a few miles away from Roadrunner Park. In an effort to better

Figure 2. Photo credit, Aly McAlexander, DFFM Forest Health Specialist (Lindgren funnel trap used for MPE monitoring, Rotary Park in Scottsdale, AZ, 2020).

understand the population and distribution of MPE in the valley, a total of 16 traps were placed in the northeast Phoenix and west Scottsdale area. Traps were collected every week for twenty

weeks starting in April 2019 and ending in August 2019. In 2020, 30 traps were placed throughout the Phoenix Metro area and monitored for 20 weeks throughout the summer. In order to determine if the beetle's lifecycle is different in Arizona's warm climate (i.e. if the beetles are actively flying and reproducing during the relatively mild fall and winter), 5 of the 30 traps were left in place after the summer trapping season ended. Trap samples are collected every week, frozen, and later processed and counted. Since monitoring began in 2018, over 133,000 MPE beetles have been collected from the Phoenix Metropolitan area (Fig. 3). An interactive dashboard has been created to update our partners on our trap locations and MPE tallies, which can be viewed here:

<https://dffm.maps.arcgis.com/apps/MapSeries/index.html?appid=4cb0e4f828d44b158aa37006880d664e>

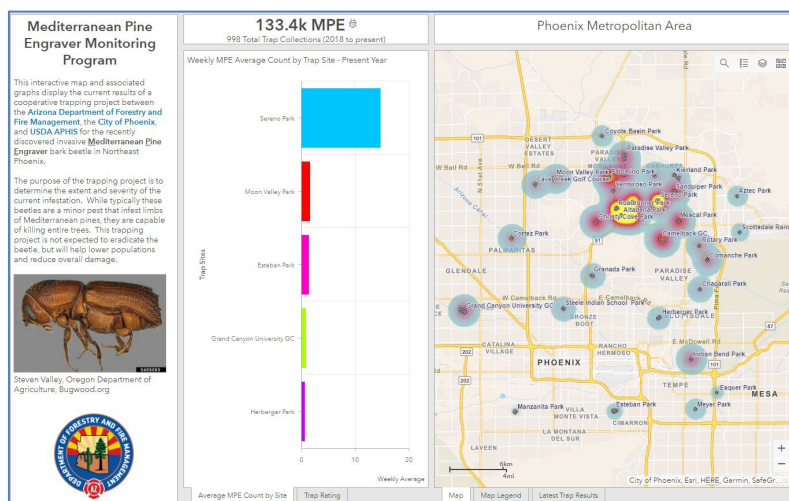


Figure 3. Current MPE count (2018 to 2020) by trap site in the Phoenix area as displayed on the interactive DFFM MPE Dashboard.

Aerial Detection Survey Highlights by DFFM District:

<p>Northern (A1S)</p> <ul style="list-style-type: none"> • 53,392 acres damaged by bark beetles • 6,054 acres damaged by defoliators • 17 acres of foliage and shoot diseases 	<p>Northeast (A2S)</p> <ul style="list-style-type: none"> • 24,973 acres damaged by bark beetles • 234 acres of foliage and shoot diseases • 5,612 acres of damage from sap feeders
<p>Southeast (A3S)</p> <ul style="list-style-type: none"> • 658 acres damaged by bark beetles • 85 acres of damage from defoliators 	<p>Central (A4S)</p> <ul style="list-style-type: none"> • 1,475 acres damaged by bark beetles • 90 acres of damage from defoliators
<p>Northwest (A5S)</p> <ul style="list-style-type: none"> • 532 acres damaged by bark beetles • 4,686 acres damaged by sap feeders 	

Contact Information

The DFFM Forest Health Program is a statewide program that is based in Phoenix, AZ.

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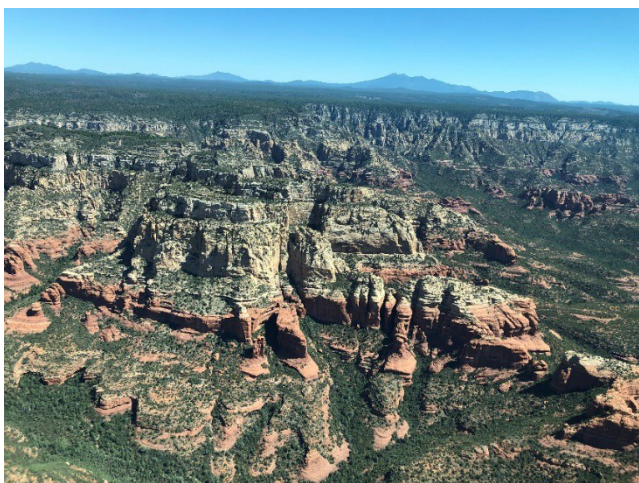


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