



## Quaking Aspen

### Introduction

Quaking aspen (*Populus tremuloides*) is the most widely distributed deciduous tree in North America. It is capable of withstanding a wide range of environmental conditions, and it is valued for multiple uses including wood products, wildlife habitat and forage, and scenery. In the Southwest, aspen trees are found in the moist upland areas above 6,500 feet. Individual trees may live up to 150 years. Aspen forms clones connected to a single parent root system, so many trees in an aspen stand are genetically identical. The parent root system may be up to one million years old.

### Ecology

Aspen requires full sunshine to flourish. Shade significantly weakens tree vigor and prevents regeneration. A healthy aspen stand provides as much forage as a grassland and 10 times more palatable biomass than conifer forests. Deer and other browsers eat young aspen saplings year-round for the protein-rich leaves, buds, and sprouts. Aspen provide important feeding and nesting habitat for numerous songbird species. In the Southwest, mature aspen canopies provide shade necessary for forbs and berry-producing shrubs, which are important components in the diet of black bears. The understory vegetation and the mixture of woody and herbaceous root systems also protect watershed quality by controlling flooding and erosion.



An aspen stand along the Rincon Peak trail. Visitors can find aspen along several trails and campgrounds in the Saguaro Wilderness Area. NPS Photo/Perry Grissom

### Response to Disturbances

Fire is crucial in maintaining aspen stands. Aspen mainly regenerates by sprouting new seedlings from the existing root structure of other mature trees through a process called 'suckering.' This helps aspen regenerate quickly after fire, and a new stand can develop within a decade. Fire returns nutrients to the soil and stimulates the hormones in the roots that trigger suckering. Low intensity surface fire results in a forest stand that contains a mix of conifer and aspen, while high intensity crown fire favors pure aspen stand regeneration. In the absence of fire, aspen decline in number and are replaced by mixed conifer species, although the successional process may occur over very long time periods. Research has shown that aspen stand rejuvenation in the West has declined since 1900 in response to increased fire suppression, however several aspen stands in Saguaro National Park (SNP) experienced natural fire in recent decades.

Aspen are susceptible to insect outbreaks. SNP scientists recorded minor to moderate defoliation by tent caterpillars in three aspen stands located in the Mica Mountain area in 2010 and 2012. Insect damage reduces resprout density compared to other disturbances, but SNP's aspen stands are healthy overall.

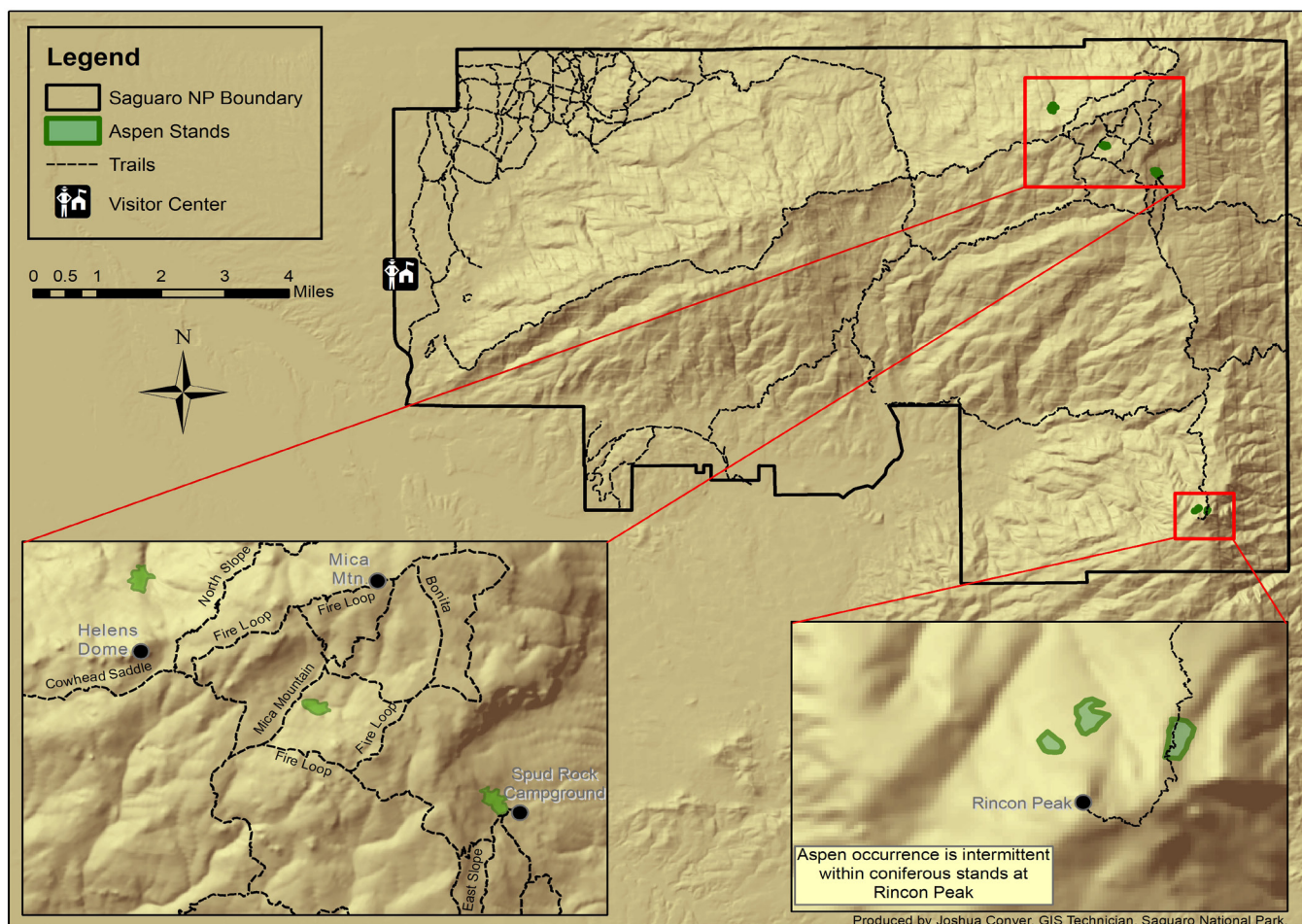
Threats to aspen in the western US include drought, warming temperatures, chronic heavy browsing, and fire suppression. These factors cause mortality in older trees or inhibit reproduction.



Aspen stand near Spud Rock Campground. Many of the individual trees in this photo are clones connected by a common root system. NPS Photo/Drew Jackson

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This map shows the locations of major aspen stands within Saguaro National Park.

## Park Locations

The best aspen stands are found near Helens Dome, Mica Mountain, and the Spud Rock Campground. These areas are accessible via several routes, but visitors should plan for long hikes on steep and rough trails.

All aspen stands are located within the Saguaro Wilderness Area. Visitors that wish to hike to aspen stands do not need a permit, but a backcountry camping permit is required for overnight stay. Applications for a backcountry camping permit are available online ([www.nps.gov/sagu](http://www.nps.gov/sagu)) or at the Visitor Center.



The aspen canopy provides cover for a dense herbaceous understory. Many animals utilize the increased forage and cover of the understory. NPS Photo/Perry Grissom



The Spud Rock Campground aspen stand is an example of a healthy, mature, even-aged stand. This area burned in the 1994 Rincon Fire. NPS Photo/Perry Grissom

## More Information

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NRInfo Portal: <http://ninfo.nps.gov/>  
Further Reading: [http://www.fs.fed.us/rm/pubs/rmrs\\_gtr202/rmrs\\_gtr202\\_039\\_055.pdf](http://www.fs.fed.us/rm/pubs/rmrs_gtr202/rmrs_gtr202_039_055.pdf)