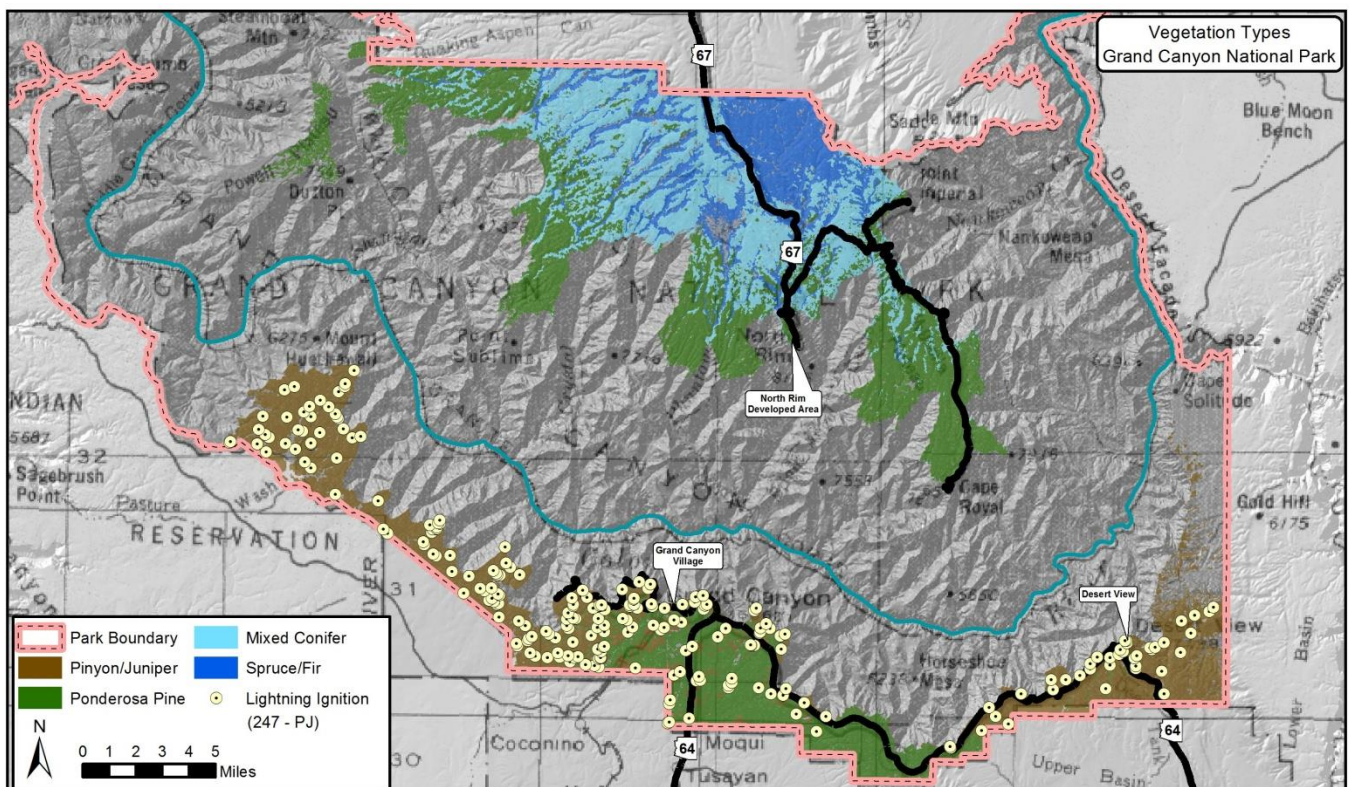




# Vegetation Types & Fire Regimes

## Piñon-Juniper Forests & Woodlands

- Located on the South Rim from the eastern park boundary to Pasture Wash and on the North Rim near the rim edges, at the SW end of Powell Plateau, and from Kanab Point to Mount Emma.
- Primary overstory species are piñon pine and Utah juniper.
- Low surface fuel loading with a large amount of bare ground, so surface fires generally don't carry far.
- Fires mostly grow by individual and group tree torching followed by spotting.
- Crown fires can occur during windy and/or dry conditions.
- Historically infrequent fire rotation (>300 years) with small patches of lethal fire intensity when fires do occur.
- 15% of the park's lightning ignited fires above the rim occur in piñon-juniper.
- Since 1990, 82% of the lightning fires in this type have been suppressed and 10% were natural outs.
- Forest condition is thought to be similar to historic condition with few effects from past fire suppression.



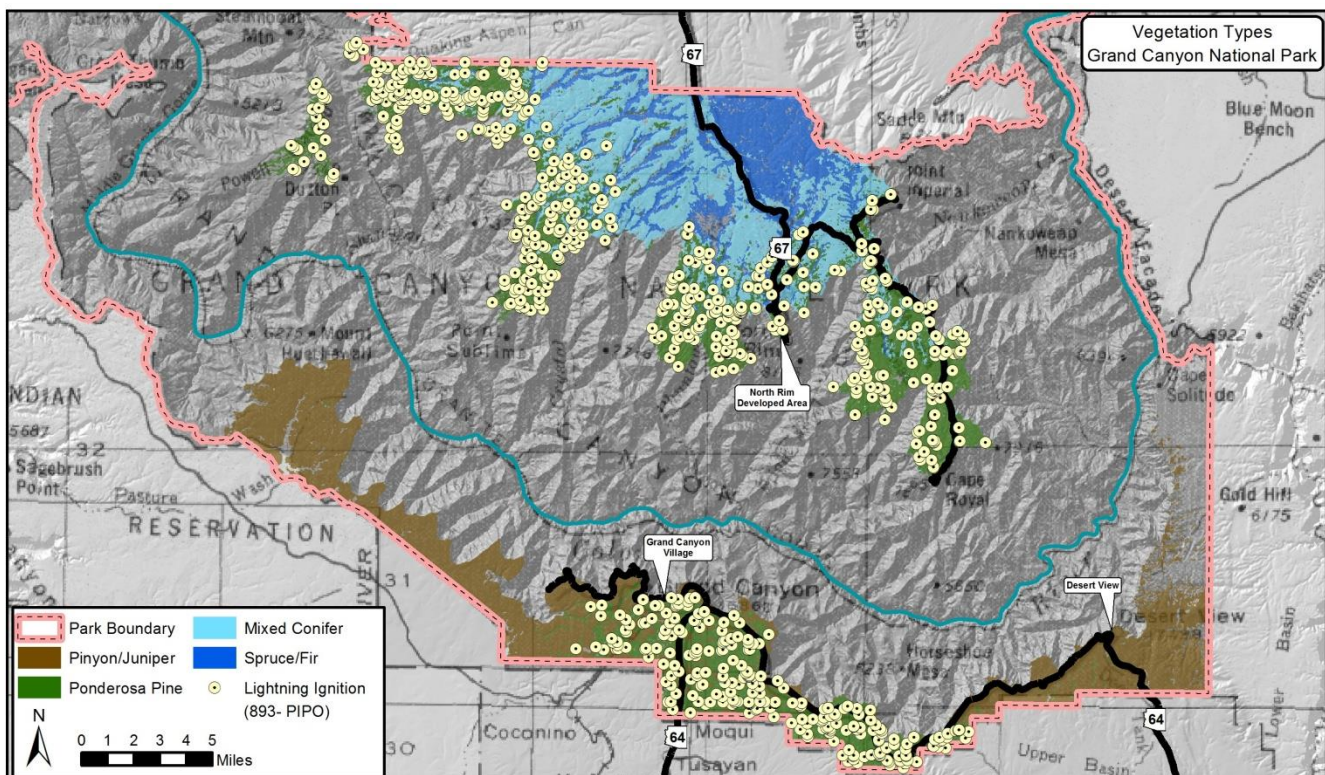




# Vegetation Types & Fire Regimes

## Ponderosa Pine Forests

- Located on the South Rim from Buggeln picnic area to Hermit's Rest and on the North Rim in low elevation sites, plateaus, and on the north side of Mount Emma.
- Primary overstory species is ponderosa pine.
- Moderate to low dead surface fuel present with pine needles primarily carrying fire.
- Fires generally grow by low intensity surface fire, but individual and group tree torching occurs in some areas.
- Historically frequent fire return (~10 years).
- 53% of the park's lightning ignited fires above the rim occur in ponderosa pine.
- Since 1990, 66% of the lightning fires in this type have been suppressed and 7% were natural outs.
- Tree densities were 150-580% higher than historic conditions due to fire suppression. However, this trend has been reversed by management in the past 25 years.
- Some North Rim ponderosa pine forests have been encroached by white fir due to fire suppression. This has led to increased fire behavior and severity in some areas.



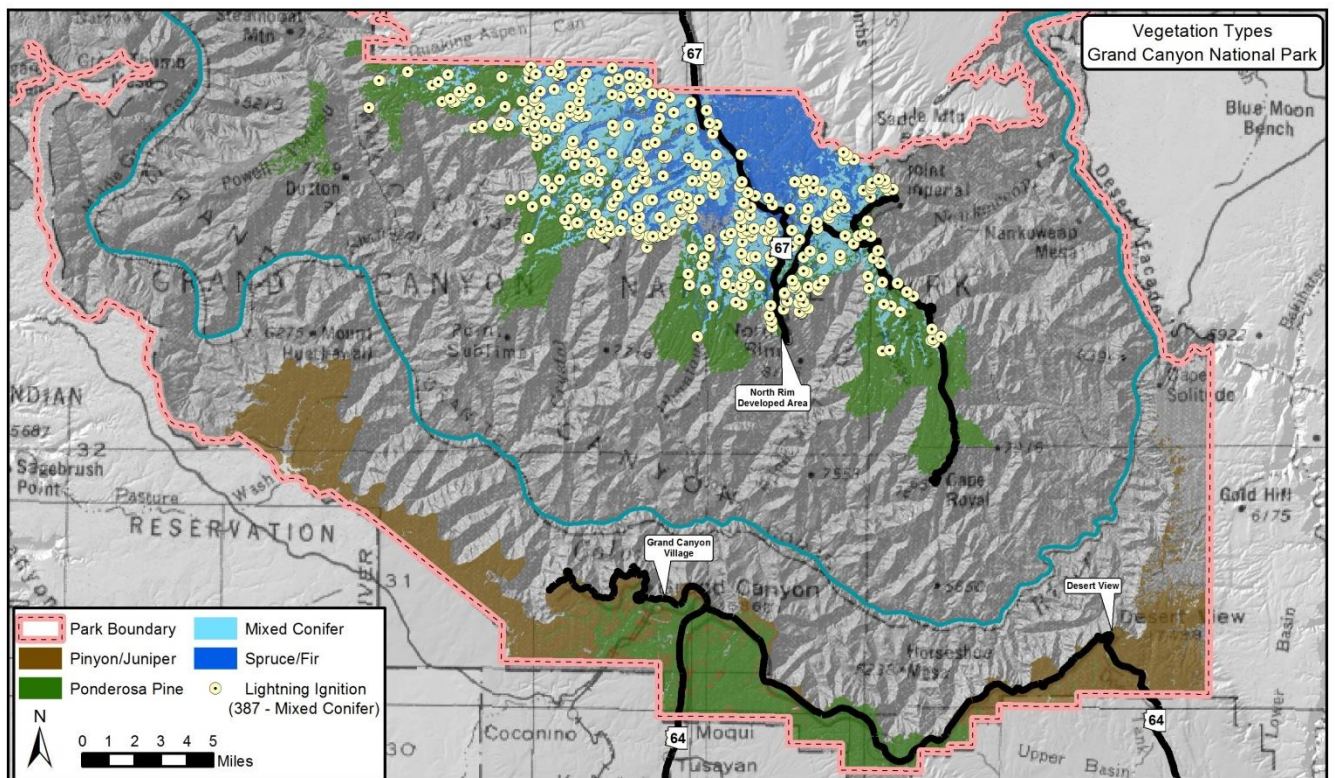




# Vegetation Types & Fire Regimes

## Mixed Conifer Forests

- Located in the middle elevations of the North Rim intermixed with ponderosa pine and spruce-fir patches.
- Overstory consists of combinations of ponderosa pine, white fir, quaking aspen, Douglas-fir, and spruce.
- Moderate to heavy dead surface fuel present that consists of conifer needles and large logs.
- Fires can grow either as surface fires, through tree torching and spotting, or as active crown fire.
- Historic fire frequency and behavior was mixed with low intensity, frequent fires on ridges & south slopes and higher intensity, less frequent fires in valleys & on north slopes.
- 23% of the park's lightning ignited fires above the rim occur here.
- Since 1990, 68% of the lightning fires in this type have been suppressed and 7% were natural outs.
- Forest condition is thought to be more homogenous and dense with generally higher fuel loading than historic conditions.







# Vegetation Types & Fire Regimes

## Spruce-Fir Forests

- Located at the highest elevations of the North Rim (primarily east of Hwy 67) and in drainages throughout the middle elevations of the North Rim.
- Engelmann spruce and aspen dominate but occasional true firs, Douglas-fir, and ponderosa pine are present.
- Heavy dead surface fuel is present and generally dominated by large logs.
- Conifer needle and aspen surface litter are compact and sparse leading to minimal fire spread along the surface.
- Crown fires can occur during windy and/or dry conditions.
- Historically infrequent fire return as conditions are rarely conducive to large fire spread.
- Stand-replacing fire effects are expected in this vegetation type due to low fire tolerance of dominant trees.
- Aspen, locust, and native shrubs and grasses generally sprout vigorously after fire.
- 9% of the park's lightning ignited fires above the rim occur here.
- Since 1990, 63% of the lightning fires in this type have been suppressed and 4% were natural outs.
- Forest condition thought to be similar to historic condition with few effects from past fire suppression.

