

## Grass Stage Development



Grass stage in longleaf pine.

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Both *Pinus palustris* and *Pinus elliottii* var. *densa* have a fire-adapted seedling stage, aptly named a "grass stage." The grass stage occurs because height growth is extremely slow for a period of years and the needles appear similar to clumps of grass.

During the grass stage, which generally lasts from 2 to 10 years, the pine seedling develops an extensive root system, which stores food. The needle clusters around the bud provides insulation from fire, and even if needles are burned, new ones will arise from the protected bud. No annual growth rings are formed during the grass stage, but once emerged from the grass stage, distinct growth rings develop.

Site conditions are an important factor in determining time spent in the grass stage. If soil fertility is low, or there is loss of needles due to fire or brown-spot needle blight, *Scirrhia acicola*, the stage may be extended, sometimes as much as 15 to 20 years. Also, surrounding vegetation affects growth. If other plant species shade trees during the grass stage, growth will be slow.

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