

U.S. Census Bureau Urban Areas
Climate Change Atlas Tree Species
 Current and Potential Future Habitat, Capability, and Migration

Area of Region sq. km sq. mi FIA Plots
 12,400 4,787.7 80

Species Information

The columns below provide brief summaries of the species associated with the region and described in the table on the next pages. Definitions are provided in the Excel file for this region.

| Genus | Species | Abundance | | Model | | Potential Change in Habitat Suitability | | Capability to Cope or Persist | | Migration Potential | | | | | |
|---------|-----------|-----------|-----------|-------------|--------------|---|----------------|-------------------------------|----------------|---------------------|-------------|-----------|---------|----|----|
| | | | | Reliability | Adaptability | Scenario RCP45 | Scenario RCP85 | Scenario RCP45 | Scenario RCP85 | SHIFT RCP45 | SHIFT RCP85 | | | | |
| Ash | 3 | | | High | 4 | 10 | Increase | 9 | 10 | Very Good | 0 | 0 | Likely | 1 | 1 |
| Hickory | 1 | | | Medium | 12 | 18 | No Change | 9 | 8 | Good | 8 | 8 | Infill | 16 | 17 |
| Maple | 1 | Abundant | 0 | Low | 13 | 4 | Decrease | 8 | 8 | Fair | 4 | 5 | Migrate | 0 | 0 |
| Oak | 7 | Common | 5 | FIA | 4 | | New | 1 | 1 | Poor | 9 | 9 | | | |
| Pine | 0 | Rare | 25 | | | | Unknown | 6 | 6 | Very Poor | 4 | 3 | | | |
| Other | 18 | Absent | 3 | | | | | | | FIA Only | 4 | 4 | | | |
| | 30 | | 33 | | 33 | 32 | | 33 | 33 | Unknown | 2 | 2 | | | |
| | | | | | | | | | | | 31 | 31 | | | |

Potential Changes in Climate Variables

Temperature (°F)

| Scenario | 2009 | 2039 | 2069 | 2099 | | |
|----------------|--------|------|------|------|------|--|
| Annual | CCSM45 | 65.3 | 66.7 | 68.2 | 68.8 | |
| Average | CCSM85 | 65.3 | 67.3 | 69.5 | 71.8 | |
| | GFDL45 | 65.3 | 71.0 | 69.6 | 71.1 | |
| | GFDL85 | 65.3 | 68.1 | 71.0 | 74.7 | |
| | HAD45 | 65.3 | 67.4 | 70.0 | 70.9 | |
| | HAD85 | 65.3 | 67.8 | 71.7 | 75.0 | |
| Growing Season | CCSM45 | 79.7 | 81.0 | 82.3 | 83.0 | |
| | CCSM85 | 79.7 | 82.0 | 83.8 | 86.8 | |
| May—Sep | GFDL45 | 79.7 | 87.3 | 84.7 | 87.4 | |
| | GFDL85 | 79.7 | 83.5 | 86.9 | 91.6 | |
| | HAD45 | 79.7 | 81.9 | 84.2 | 84.8 | |
| | HAD85 | 79.7 | 82.4 | 86.9 | 89.8 | |
| Coldest Month | CCSM45 | 43.7 | 45.9 | 46.6 | 47.0 | |
| Average | CCSM85 | 43.7 | 45.9 | 47.0 | 48.2 | |
| | GFDL45 | 43.7 | 47.3 | 47.3 | 47.4 | |
| | GFDL85 | 43.7 | 44.9 | 46.2 | 46.6 | |
| | HAD45 | 43.7 | 44.1 | 46.1 | 46.5 | |
| | HAD85 | 43.7 | 46.5 | 48.2 | 49.9 | |
| Warmest Month | CCSM45 | 85.3 | 86.3 | 87.1 | 87.3 | |
| Average | CCSM85 | 85.3 | 87.3 | 87.9 | 89.6 | |
| | GFDL45 | 85.3 | 90.5 | 90.6 | 92.6 | |
| | GFDL85 | 85.3 | 90.4 | 92.1 | 95.9 | |
| | HAD45 | 85.3 | 87.7 | 88.9 | 89.1 | |
| | HAD85 | 85.3 | 88.4 | 90.7 | 91.6 | |

Precipitation (in)

| Scenario | 2009 | 2039 | 2069 | 2099 | | |
|----------------|--------|------|------|------|------|--|
| Annual | CCSM45 | 38.0 | 38.7 | 39.1 | 37.8 | |
| Total | CCSM85 | 38.0 | 37.0 | 40.6 | 39.9 | |
| | GFDL45 | 38.0 | 38.9 | 44.9 | 37.3 | |
| | GFDL85 | 38.0 | 38.3 | 41.4 | 40.6 | |
| | HAD45 | 38.0 | 38.3 | 37.7 | 40.0 | |
| | HAD85 | 38.0 | 39.4 | 34.7 | 37.8 | |
| Growing Season | CCSM45 | 16.2 | 17.8 | 15.9 | 16.4 | |
| | CCSM85 | 16.2 | 16.0 | 16.2 | 15.8 | |
| May—Sep | GFDL45 | 16.2 | 17.2 | 20.6 | 16.7 | |
| | GFDL85 | 16.2 | 17.5 | 18.9 | 18.0 | |
| | HAD45 | 16.2 | 15.7 | 15.2 | 16.3 | |
| | HAD85 | 16.2 | 16.0 | 12.8 | 14.1 | |

NOTE: For the six climate variables, four 30-year periods are used to indicate six potential future trajectories. The period ending in 2009 is based on modeled observations from the PRISM Climate Group and the three future periods were obtained from the NASA NEX-DCP30 dataset. Future climate projections from three models under two emission scenarios show estimates of each climate variable within the region. The three models are CCSM4, GFDL CM3, and HadGEM2-ES and the emission scenarios are the 4.5 and 8.5 RCP. The average value for the region is reported, even though locations within the region may vary substantially based on latitude, elevation, land-use, or other factors.

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Current and Potential Future Habitat, Capability, and Migration

| Common Name | Scientific Name | Range | MR | %Cell | FIAsum | FIAiv | ChngCl45 | ChngCl85 | Adap | Abund | Capabil45 | Capabil85 | SHIFT45 | SHIFT85 | SSO | N |
|------------------------|------------------------------|-------|--------|-------|--------|-------|---------------|---------------|--------|--------|-------------|-------------|-----------|-----------|-----|----|
| sugarberry | Celtis laevigata | NDH | Medium | 63.7 | 167.7 | 22.1 | Sm. dec. | Sm. dec. | Medium | Common | Poor | Poor | Infill + | Infill + | 2 | 1 |
| cedar elm | Ulmus crassifolia | NDH | Medium | 58.9 | 99.5 | 21.3 | Sm. inc. | Sm. inc. | Low | Common | Fair | Fair | Infill + | Infill + | 2 | 2 |
| Osage-orange | Maclura pomifera | NDH | Medium | 46 | 72.6 | 20.0 | No change | No change | High | Common | Good | Good | Infill ++ | Infill ++ | 2 | 3 |
| ashe juniper | Juniperus ashei | NDH | High | 17.7 | 64.7 | 16.8 | Sm. inc. | Sm. inc. | Medium | Common | Good | Good | | | 0 | 4 |
| eastern redcedar | Juniperus virginiana | WDH | Medium | 43.5 | 57.8 | 10.5 | Sm. inc. | Sm. inc. | Medium | Common | Good | Good | Infill ++ | Infill ++ | 2 | 5 |
| green ash | Fraxinus pennsylvanica | WSH | Low | 26.6 | 32.5 | 14.2 | No change | No change | Medium | Rare | Poor | Poor | Infill + | Infill + | 2 | 6 |
| post oak | Quercus stellata | WDH | High | 22.6 | 31.1 | 19.7 | Sm. inc. | Sm. inc. | High | Rare | Good | Good | Infill ++ | Infill ++ | 2 | 7 |
| winged elm | Ulmus alata | WDL | Medium | 26.6 | 30.7 | 13.1 | No change | No change | Medium | Rare | Poor | Poor | Infill + | Infill + | 2 | 8 |
| honeylocust | Gleditsia triacanthos | NSH | Low | 33.9 | 28.9 | 9.8 | Sm. dec. | Sm. dec. | High | Rare | Poor | Poor | Infill + | Infill + | 2 | 9 |
| hackberry | Celtis occidentalis | WDH | Medium | 19.4 | 19.1 | 14.1 | Sm. inc. | Sm. inc. | High | Rare | Good | Good | Infill ++ | Infill ++ | 2 | 10 |
| black walnut | Juglans nigra | WDH | Low | 6.5 | 17.8 | 39.4 | Very Lg. dec. | Very Lg. dec. | Medium | Rare | Lost | Lost | | | 0 | 11 |
| Shumard oak | Quercus shumardii | NSL | Low | 7.3 | 15.5 | 9.3 | No change | No change | High | Rare | Fair | Fair | Infill + | Infill + | 2 | 12 |
| American elm | Ulmus americana | WDH | Medium | 32.3 | 14.6 | 6.5 | Lg. inc. | Lg. inc. | Medium | Rare | Good | Good | | | 2 | 13 |
| eastern cottonwood | Populus deltoides | NSH | Low | 16.1 | 13.5 | 12.0 | No change | No change | Medium | Rare | Poor | Poor | Infill + | Infill + | 2 | 14 |
| blackjack oak | Quercus marilandica | NSL | Medium | 16.1 | 13.1 | 11.7 | No change | No change | High | Rare | Fair | Fair | Infill + | Infill + | 2 | 15 |
| cittamwood/gum bumelia | Sideroxylon lanuginosum ssp. | NSL | Low | 16.9 | 8.0 | 4.6 | Lg. inc. | Lg. inc. | High | Rare | Good | Good | Infill ++ | Infill ++ | 2 | 16 |
| boxelder | Acer negundo | WSH | Low | 6.5 | 6.8 | 15.0 | No change | No change | High | Rare | Fair | Fair | Infill + | Infill + | 2 | 17 |
| Texas ash | Fraxinus texensis | NDH | FIA | 9.7 | 6.1 | 9.0 | Unknown | Unknown | NA | Rare | FIA Only | FIA Only | | | 0 | 18 |
| slippery elm | Ulmus rubra | WSL | Low | 6.5 | 5.8 | 12.9 | No change | No change | Medium | Rare | Poor | Poor | Infill + | Infill + | 2 | 19 |
| waterlocust | Gleditsia aquatica | NSLX | FIA | 3.2 | 5.6 | 25.0 | Unknown | Unknown | Medium | Rare | FIA Only | FIA Only | | | 0 | 20 |
| pecan | Carya illinoensis | NSH | Low | 9.7 | 5.1 | 7.5 | Sm. inc. | Lg. inc. | Low | Rare | Poor | Fair | Infill + | Infill + | 2 | 21 |
| black willow | Salix nigra | NSH | Low | 12.9 | 4.3 | 4.8 | No change | Sm. inc. | Low | Rare | Very Poor | Poor | | Infill + | 2 | 22 |
| wild plum | Prunus americana | NSLX | FIA | 3.2 | 3.5 | 15.6 | Unknown | Unknown | Medium | Rare | FIA Only | FIA Only | | | 0 | 23 |
| red mulberry | Morus rubra | NSL | Low | 10.5 | 3.3 | 2.3 | Lg. dec. | Lg. dec. | Medium | Rare | Very Poor | Very Poor | | | 0 | 24 |
| white ash | Fraxinus americana | WDL | Medium | 6.5 | 3.1 | 6.8 | Sm. dec. | Sm. dec. | Low | Rare | Very Poor | Very Poor | | | 0 | 25 |
| bur oak | Quercus macrocarpa | NDH | Medium | 6.5 | 1.6 | 3.5 | Sm. dec. | Sm. dec. | High | Rare | Poor | Poor | | | 0 | 26 |
| live oak | Quercus virginiana | NDH | High | 6.5 | 1.2 | 2.6 | Lg. inc. | Lg. inc. | Medium | Rare | Good | Good | | | 2 | 27 |
| common persimmon | Diospyros virginiana | NSL | Low | 3.2 | 0.9 | 3.8 | Sm. dec. | Sm. dec. | High | Rare | Poor | Poor | | | 0 | 28 |
| chinkapin oak | Quercus muehlenbergii | NSL | Medium | 3.2 | 0.8 | 3.5 | Sm. dec. | Sm. dec. | Medium | Rare | Very Poor | Very Poor | | | 0 | 29 |
| durand oak | Quercus sinuata var. sinuata | NSL | FIA | 3.2 | 0.1 | 0.6 | Unknown | Unknown | Medium | Rare | FIA Only | FIA Only | | | 0 | 30 |
| flowering dogwood | Cornus florida | WDL | Medium | 0 | 0 | 0 | Unknown | Unknown | Medium | Absent | Unknown | Unknown | | | 0 | 31 |
| bigleaf magnolia | Magnolia macrophylla | NSL | Low | 0 | 0 | 0 | Unknown | Unknown | Medium | Absent | Unknown | Unknown | | | 0 | 32 |
| water oak | Quercus nigra | WDH | High | 0 | 0 | 0 | New Habitat | New Habitat | Medium | Absent | New Habitat | New Habitat | Likely + | Likely + | 3 | 33 |