

sq. km    sq. mi    FIA Plots  
Area of Region    26,238    10,130    2

**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     | 2         |           |           | High        | 16           | 21                                      | Increase       | 6                             | 6              | Very Good           | 0           | 0         | Likely  | 18 | 19 |
| Hickory | 1         |           |           | Medium      | 20           | 29                                      | No Change      | 6                             | 5              | Good                | 2           | 2         | Infill  | 12 | 12 |
| Maple   | 3         | Abundant  | 0         | Low         | 22           | 9                                       | Decrease       | 7                             | 8              | Fair                | 5           | 5         | Migrate | 5  | 7  |
| Oak     | 1         | Common    | 0         | FIA         | 3            |   | New            | 36                            | 38             | Poor                | 6           | 6         |         |    |    |
| Pine    | 1         | Rare      | 22        |             |              |   | Unknown        | 6                             | 4              | Very Poor           | 5           | 5         |         |    |    |
| Other   | 14        | Absent    | 39        |             |              |   |                |                               |                | FIA Only            | 1           | 1         |         |    |    |
|         | <b>22</b> |           | <b>61</b> |             | <b>61</b>    | <b>59</b>                               |                | <b>61</b>                     | <b>61</b>      | Unknown             | 3           | 1         |         |    |    |
|         |           |           |           |             |              |   |                |                               |                |                     | <b>22</b>   | <b>20</b> |         |    |    |

**Potential Changes in Climate Variables**

**Temperature (°F)**

|                         | Scenario                 | 2009   | 2039 | 2069 | 2099 |      |
|-------------------------|--------------------------|--------|------|------|------|------|
| Annual Average          | CCSM45                   | 32.3   | 32.3 | 32.3 | 32.3 |      |
|                         | CCSM85                   | 32.3   | 32.3 | 32.3 | 32.4 |      |
|                         | GFDL45                   | 32.3   | 32.3 | 32.3 | 32.4 |      |
|                         | GFDL85                   | 32.3   | 32.3 | 32.4 | 32.4 |      |
|                         | HAD45                    | 32.3   | 32.3 | 32.3 | 32.4 |      |
|                         | HAD85                    | 32.3   | 32.3 | 32.4 | 32.4 |      |
|                         | Growing Season (May—Sep) | CCSM45 | 32.5 | 32.5 | 32.6 | 32.6 |
| CCSM85                  |                          | 32.5   | 32.5 | 32.6 | 32.6 |      |
| GFDL45                  |                          | 32.5   | 32.6 | 32.6 | 32.6 |      |
| GFDL85                  |                          | 32.5   | 32.6 | 32.6 | 32.7 |      |
| HAD45                   |                          | 32.5   | 32.5 | 32.6 | 32.6 |      |
| HAD85                   |                          | 32.5   | 32.5 | 32.6 | 32.7 |      |
| Coldest Month (Average) |                          | CCSM45 | 31.9 | 31.9 | 32.0 | 32.0 |
|                         | CCSM85                   | 31.9   | 31.9 | 32.0 | 32.0 |      |
|                         | GFDL45                   | 31.9   | 31.9 | 32.0 | 32.0 |      |
|                         | GFDL85                   | 31.9   | 31.9 | 32.0 | 32.0 |      |
|                         | HAD45                    | 31.9   | 31.9 | 32.0 | 32.0 |      |
|                         | HAD85                    | 31.9   | 31.9 | 32.0 | 32.0 |      |
|                         | Warmest Month (Average)  | CCSM45 | 32.6 | 32.6 | 32.6 | 32.6 |
| CCSM85                  |                          | 32.6   | 32.6 | 32.6 | 32.7 |      |
| GFDL45                  |                          | 32.6   | 32.6 | 32.6 | 32.7 |      |
| GFDL85                  |                          | 32.6   | 32.6 | 32.7 | 32.7 |      |
| HAD45                   |                          | 32.6   | 32.6 | 32.7 | 32.7 |      |
| HAD85                   |                          | 32.6   | 32.6 | 32.7 | 32.7 |      |

**Precipitation (in)**

|                          | Scenario | 2009 | 2039 | 2069 | 2099 |  |
|--------------------------|----------|------|------|------|------|--|
| Annual Total             | CCSM45   | .5   | .5   | .5   | .6   |  |
|                          | CCSM85   | .5   | .5   | .5   | .6   |  |
|                          | GFDL45   | .5   | .6   | .6   | .6   |  |
|                          | GFDL85   | .5   | .6   | .6   | .6   |  |
|                          | HAD45    | .5   | .5   | .5   | .5   |  |
|                          | HAD85    | .5   | .6   | .5   | .6   |  |
| Growing Season (May—Sep) | CCSM45   | .2   | .2   | .2   | .2   |  |
|                          | CCSM85   | .2   | .2   | .2   | .2   |  |
|                          | GFDL45   | .2   | .3   | .3   | .3   |  |
|                          | GFDL85   | .2   | .3   | .3   | .3   |  |
|                          | HAD45    | .2   | .2   | .2   | .2   |  |
|                          | HAD85    | .2   | .2   | .2   | .2   |  |

**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  |
|-----------------------------|-------------------------|-------|--------|-------|--------|-------|---------------|---------------|--------|--------|-------------|-------------|------------|------------|-----|----|
| red maple                   | Acer rubrum             | WDH   | High   | 16.9  | 9.8    | 0.6   | Lg. dec.      | Lg. dec.      | High   | Rare   | Poor        | Poor        | Infill +   | Infill +   | 1   | 1  |
| eastern cottonwood          | Populus deltoides       | NSH   | Low    | 20.7  | 5.9    | 4.6   | Sm. dec.      | Sm. dec.      | Medium | Rare   | Very Poor   | Very Poor   |            |            | 2   | 2  |
| green ash                   | Fraxinus pennsylvanica  | WSH   | Low    | 13.6  | 5.8    | 0.8   | No change     | No change     | Medium | Rare   | Poor        | Poor        | Infill +   | Infill +   | 1   | 3  |
| eastern redcedar            | Juniperus virginiana    | WDH   | Medium | 20.7  | 3.6    | 2.9   | Sm. inc.      | Sm. inc.      | Medium | Rare   | Fair        | Fair        | Infill +   | Infill +   | 2   | 4  |
| black cherry                | Prunus serotina         | WDL   | Medium | 23    | 3.2    | 0.4   | No change     | Sm. dec.      | Low    | Rare   | Very Poor   | Very Poor   |            |            | 0   | 5  |
| blackgum                    | Nyssa sylvatica         | WDL   | Medium | 7.6   | 3.1    | 0.2   | Sm. dec.      | Sm. dec.      | High   | Rare   | Poor        | Poor        | Infill +   | Infill +   | 2   | 6  |
| white ash                   | Fraxinus americana      | WDL   | Medium | 16.9  | 2.4    | 0.3   | Sm. inc.      | Sm. inc.      | Low    | Rare   | Poor        | Poor        | Infill +   | Infill +   | 2   | 7  |
| sycamore                    | Platanus occidentalis   | NSL   | Low    | 9.9   | 2.3    | 0.9   | No change     | Sm. inc.      | Medium | Rare   | Poor        | Fair        | Infill +   | Infill +   | 2   | 8  |
| bitternut hickory           | Carya cordiformis       | WSL   | Low    | 9.9   | 1.3    | 0.5   | No change     | No change     | High   | Rare   | Fair        | Fair        | Infill +   | Infill +   | 2   | 9  |
| bigtooth aspen              | Populus grandidentata   | NSL   | Medium | 3.9   | 1.3    | 0.2   | Very Lg. dec. | Very Lg. dec. | Medium | Rare   | Lost        | Lost        |            |            | 0   | 10 |
| yellow-poplar               | Liriodendron tulipifera | WDH   | High   | 13    | 1.2    | 0.2   | Sm. inc.      | Sm. inc.      | High   | Rare   | Good        | Good        | Infill ++  | Infill ++  | 2   | 11 |
| Scots pine                  | Pinus sylvestris        | NSH   | FIA    | 3.9   | 1.0    | 0.1   | Unknown       | Unknown       | NA     | Rare   | NNIS        | NNIS        |            |            | 0   | 12 |
| chestnut oak                | Quercus prinus          | NDH   | High   | 9.3   | 0.9    | 0.3   | No change     | No change     | High   | Rare   | Fair        | Fair        | Infill +   | Infill +   | 2   | 13 |
| white mulberry              | Morus alba              | NSL   | FIA    | 9.9   | 0.9    | 0.3   | Unknown       | Unknown       | NA     | Rare   | NNIS        | NNIS        |            |            | 0   | 14 |
| black maple                 | Acer nigrum             | NSH   | Low    | 9.9   | 0.8    | 0.3   | Lg. dec.      | Lg. dec.      | High   | Rare   | Poor        | Poor        |            |            | 0   | 15 |
| American basswood           | Tilia americana         | WSL   | Medium | 13.6  | 0.7    | 0.1   | Sm. inc.      | No change     | Medium | Rare   | Fair        | Poor        | Infill +   | Infill +   | 2   | 16 |
| sugar maple                 | Acer saccharum          | WDH   | High   | 9.3   | 0.5    | 0.2   | Lg. inc.      | Sm. inc.      | High   | Rare   | Good        | Good        | Infill ++  | Infill ++  | 2   | 17 |
| quaking aspen               | Populus tremuloides     | WDH   | High   | 3.7   | 0.5    | 0.1   | Sm. dec.      | Sm. dec.      | Medium | Rare   | Very Poor   | Very Poor   |            |            | 0   | 18 |
| chokecherry                 | Prunus virginiana       | NSLX  | FIA    | 9.9   | 0.4    | 0.2   | Unknown       | Unknown       | Medium | Rare   | FIA Only    | FIA Only    |            |            | 0   | 19 |
| eastern hemlock             | Tsuga canadensis        | NSH   | High   | 9.3   | 0.2    | 0.1   | No change     | No change     | Low    | Rare   | Very Poor   | Very Poor   |            |            | 2   | 20 |
| American beech              | Fagus grandifolia       | WDH   | High   | 9.3   | 0.1    | 0.0   | Sm. inc.      | Sm. inc.      | Medium | Rare   | Fair        | Fair        | Infill +   | Infill +   | 2   | 21 |
| cucumbertree                | Magnolia acuminata      | NSL   | Low    | 9.3   | 0.1    | 0.0   | Lg. dec.      | Lg. dec.      | Medium | Rare   | Very Poor   | Very Poor   |            |            | 0   | 22 |
| ashe juniper                | Juniperus ashei         | NDH   | High   | 0     | 0      | 0     | New Habitat   | New Habitat   | Medium | Absent | New Habitat | New Habitat |            |            | 0   | 23 |
| shortleaf pine              | Pinus echinata          | WDH   | High   | 0     | 0      | 0     | New Habitat   | New Habitat   | Medium | Absent | New Habitat | New Habitat |            |            | 3   | 24 |
| eastern white pine          | Pinus strobus           | WDH   | High   | 0     | 0      | 0     | New Habitat   | New Habitat   | Low    | Absent | New Habitat | New Habitat | Likely +   | Likely +   | 3   | 25 |
| florida maple               | Acer barbatum           | NSL   | Low    | 0     | 0      | 0     | Unknown       | New Habitat   | High   | Absent | Unknown     | New Habitat |            |            | 0   | 26 |
| boxelder                    | Acer negundo            | WSH   | Low    | 0     | 0      | 0     | New Habitat   | New Habitat   | High   | Absent | New Habitat | New Habitat | Likely +   | Likely +   | 3   | 27 |
| silver maple                | Acer saccharinum        | NSH   | Low    | 0     | 0      | 0     | New Habitat   | New Habitat   | High   | Absent | New Habitat | New Habitat | Likely +   | Likely +   | 3   | 28 |
| sweet birch                 | Betula lenta            | NDH   | High   | 0     | 0      | 0     | New Habitat   | New Habitat   | Low    | Absent | New Habitat | New Habitat | Migrate ++ | Migrate ++ | 3   | 29 |
| American hornbeam; muscle   | Carpinus caroliniana    | WSL   | Low    | 0     | 0      | 0     | New Habitat   | New Habitat   | Medium | Absent | New Habitat | New Habitat | Likely +   | Likely +   | 3   | 30 |
| pignut hickory              | Carya glabra            | WDL   | Medium | 0     | 0      | 0     | New Habitat   | New Habitat   | Medium | Absent | New Habitat | New Habitat | Likely +   | Likely +   | 3   | 31 |
| pecan                       | Carya illinoensis       | NSH   | Low    | 0     | 0      | 0     | New Habitat   | New Habitat   | Low    | Absent | New Habitat | New Habitat |            |            | 0   | 32 |
| shagbark hickory            | Carya ovata             | WSL   | Medium | 0     | 0      | 0     | New Habitat   | New Habitat   | Medium | Absent | New Habitat | New Habitat | Likely +   | Likely +   | 3   | 33 |
| black hickory               | Carya texana            | NDL   | High   | 0     | 0      | 0     | New Habitat   | New Habitat   | Medium | Absent | New Habitat | New Habitat |            |            | 0   | 34 |
| mockernut hickory           | Carya alba              | WDL   | Medium | 0     | 0      | 0     | New Habitat   | New Habitat   | High   | Absent | New Habitat | New Habitat | Likely +   | Likely +   | 3   | 35 |
| sugarberry                  | Celtis laevigata        | NDH   | Medium | 0     | 0      | 0     | New Habitat   | New Habitat   | Medium | Absent | New Habitat | New Habitat |            |            | 0   | 36 |
| hackberry                   | Celtis occidentalis     | WDH   | Medium | 0     | 0      | 0     | New Habitat   | New Habitat   | High   | Absent | New Habitat | New Habitat | Likely +   | Likely +   | 3   | 37 |
| eastern redbud              | Cercis canadensis       | NSL   | Low    | 0     | 0      | 0     | New Habitat   | New Habitat   | Medium | Absent | New Habitat | New Habitat | Migrate +  | Migrate +  | 3   | 38 |
| flowering dogwood           | Cornus florida          | WDL   | Medium | 0     | 0      | 0     | Unknown       | New Habitat   | Medium | Absent | Unknown     | New Habitat |            | Likely +   | 3   | 39 |
| common persimmon            | Diospyros virginiana    | NSL   | Low    | 0     | 0      | 0     | New Habitat   | New Habitat   | High   | Absent | New Habitat | New Habitat |            | Migrate +  | 3   | 40 |
| honeylocust                 | Gleditsia triacanthos   | NSH   | Low    | 0     | 0      | 0     | New Habitat   | New Habitat   | High   | Absent | New Habitat | New Habitat | Migrate ++ | Migrate +  | 3   | 41 |
| black walnut                | Juglans nigra           | WDH   | Low    | 0     | 0      | 0     | New Habitat   | New Habitat   | Medium | Absent | New Habitat | New Habitat | Likely +   | Likely +   | 3   | 42 |
| sweetgum                    | Liquidambar styraciflua | WDH   | High   | 0     | 0      | 0     | New Habitat   | New Habitat   | Medium | Absent | New Habitat | New Habitat | Migrate +  | Migrate ++ | 3   | 43 |
| Osage-orange                | Maclura pomifera        | NDH   | Medium | 0     | 0      | 0     | New Habitat   | New Habitat   | High   | Absent | New Habitat | New Habitat |            | Migrate +  | 3   | 44 |
| mountain or Fraser magnolia | Magnolia fraseri        | NSL   | Low    | 0     | 0      | 0     | Unknown       | Unknown       | Low    | Absent | Unknown     | Unknown     |            |            | 0   | 45 |
| red mulberry                | Morus rubra             | NSL   | Low    | 0     | 0      | 0     | New Habitat   | New Habitat   | Medium | Absent | New Habitat | New Habitat |            |            | 3   | 46 |
| eastern hophornbeam; ironw  | Ostrya virginiana       | WSL   | Low    | 0     | 0      | 0     | New Habitat   | New Habitat   | High   | Absent | New Habitat | New Habitat | Likely +   | Likely +   | 3   | 47 |

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  |
|------------------|----------------------|-------|--------|-------|--------|-------|-------------|-------------|--------|--------|-------------|-------------|------------|------------|-----|----|
| white oak        | Quercus alba         | WDH   | Medium | 0     | 0      | 0     | New Habitat | New Habitat | High   | Absent | New Habitat | New Habitat | Likely +   | Likely +   | 3   | 48 |
| bur oak          | Quercus macrocarpa   | NDH   | Medium | 0     | 0      | 0     | New Habitat | New Habitat | High   | Absent | New Habitat | New Habitat | Likely +   | Likely +   | 3   | 49 |
| blackjack oak    | Quercus marilandica  | NSL   | Medium | 0     | 0      | 0     | New Habitat | New Habitat | High   | Absent | New Habitat | New Habitat |            |            | 0   | 50 |
| pin oak          | Quercus palustris    | NSH   | Low    | 0     | 0      | 0     | New Habitat | New Habitat | Low    | Absent | New Habitat | New Habitat | Likely +   | Likely +   | 3   | 51 |
| northern red oak | Quercus rubra        | WDH   | Medium | 0     | 0      | 0     | New Habitat | New Habitat | High   | Absent | New Habitat | New Habitat | Likely +   | Likely +   | 3   | 52 |
| post oak         | Quercus stellata     | WDH   | High   | 0     | 0      | 0     | New Habitat | New Habitat | High   | Absent | New Habitat | New Habitat |            |            | 3   | 53 |
| black oak        | Quercus velutina     | WDH   | High   | 0     | 0      | 0     | New Habitat | New Habitat | Medium | Absent | New Habitat | New Habitat | Migrate ++ | Migrate ++ | 3   | 54 |
| live oak         | Quercus virginiana   | NDH   | High   | 0     | 0      | 0     | New Habitat | New Habitat | Medium | Absent | New Habitat | New Habitat |            |            | 0   | 55 |
| black locust     | Robinia pseudoacacia | NDH   | Low    | 0     | 0      | 0     | New Habitat | New Habitat | Medium | Absent | New Habitat | New Habitat | Likely +   | Likely +   | 3   | 56 |
| sassafras        | Sassafras albidum    | WSL   | Low    | 0     | 0      | 0     | New Habitat | New Habitat | Medium | Absent | New Habitat | New Habitat | Likely +   | Likely +   | 3   | 57 |
| winged elm       | Ulmus alata          | WDL   | Medium | 0     | 0      | 0     | New Habitat | New Habitat | Medium | Absent | New Habitat | New Habitat |            |            | 3   | 58 |
| American elm     | Ulmus americana      | WDH   | Medium | 0     | 0      | 0     | New Habitat | New Habitat | Medium | Absent | New Habitat | New Habitat | Likely +   | Likely +   | 3   | 59 |
| cedar elm        | Ulmus crassifolia    | NDH   | Medium | 0     | 0      | 0     | New Habitat | New Habitat | Low    | Absent | New Habitat | New Habitat |            |            | 0   | 60 |
| slippery elm     | Ulmus rubra          | WSL   | Low    | 0     | 0      | 0     | New Habitat | New Habitat | Medium | Absent | New Habitat | New Habitat | Likely +   | Likely +   | 3   | 61 |