

Phytogeography refers to the study of the natural geographic distribution of plants. When considering the overall range of the eastern flora of North America, Delaware could be referred to as a “floristic crossroads” between the north and south. Of the 1557 native species and varieties of vascular plants known to occur in Delaware, 433 have a more southern distribution. In other words, 439 species are at or near their northern limits of natural geographic distribution. In comparison, 333 have a more northern distribution and are at or near their southern limits. The southern flora of Delaware comprises 28% of the known native flora of the state, and the northern flora comprises 21%. Within the Piedmont physiographic province, (the northern portion of Delaware), 88 species have northern affinities, while 23 have southern affinities. In the Coastal Plain physiographic province-the southern portion of the state-302 have southern affinities, and 118 have northern affinities. Considering the rare and uncommon flora of Delaware: 156 species are more southern in their distributions, and 140 species are more northern in their distributions.

The primary limiting factor in a plant species overall distribution is climate, i.e., temperature and precipitation. Species with a more southern distribution obviously prefer warmer temperatures, and vice-versa for species with northern affinities. Delaware has a mild, temperate climate which is moderated by the effects of the Atlantic Ocean and Delaware Bay, and temperatures are fairly consistent throughout the state. The coldest month of the year is January, with an average temperature measured in Newark (Piedmont province) of 31.2°F, and 34.5°F measured in Lewes (Coastal Plain province). July is the warmest month with average temperatures of 76.0°F measured in Newark, and 75.9°F measured in Lewes. Precipitation is distributed fairly evenly throughout the year with average annual rates of 43.3 inches (110.0 cm) measured in Newark, and 45.5 inches (115.6 cm) measured in Lewes.

Soils and hydrology are other factors that work to define overall species distributions. Soil chemistry, as related to pH and available nutrients has a strong influence on species distribution. Many plants of the Coastal Plain prefer sandy, acidic soils which could prevent them from migrating further north into the Piedmont or Mountains. In the Piedmont and Mountain regions, there are many soil types that tend to be more nutrient rich with higher pH values. Regional hydrological conditions, such as tidal or non-tidal waters can determine which species are able to become established and persist, thus influencing their overall distributions.

Some examples of native Delaware species that are more southern include: *Symphytotrichum tenuifolium*, perennial salt-marsh aster; *Solidago fistulosa*, pine barren goldenrod; *Woodwardia areolata*, netted chain fern; *Quercus falcata*, southern red oak; and *Taxodium distichum*, bald cypress. Some examples of native Delaware species that are more northern include: *Symphytotrichum novae-angliae*, New England aster; *Vernonia noveboracensis*, New York ironweed; *Dryopteris marginalis*, marginal woodfern; *Betula lenta*, sweet birch; and *Acer saccharum*, sugar maple.

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