



Photo: Courtesy Hawk Mountain Sanctuary

Climate Change Today

“THE CONSEQUENCES OF INACTION ON CLIMATE CHANGE WILL BE FELT BY ALL PENNSYLVANIANS. IT WILL AFFECT THE FOOD WE GROW, THE ENERGY WE USE, OUR RECREATION, AND EVEN OUR HEALTH.”

Patrick McDonnell / Acting Secretary, Pennsylvania Department of Environmental Protection

Have you noticed a change in the climate? To date, average temperatures in Pennsylvania have increased by about 1.8°F. It sounds like a trivial change, but it's enough to impact what plants and animals will thrive, and even survive, here over time. Plant hardiness zones used by farmers and gardeners throughout the U.S. bear testimony to these changes. Hardiness zones have shifted so broadly that almost every place in Pennsylvania is now assigned to a different hardiness zone than it was in 1990.

This warmer climate is disrupting our natural landscapes and, in the process, changing the face of the Commonwealth. Pennsylvania is losing its iconic state tree, the eastern hemlock, as warming winters enable its nemesis, a small aphid-like insect, to thrive and spread. For much of the last century, cold winter spells effectively kept this pest in check, but now it is present throughout every county along the Kittatinny Ridge and in most counties statewide. Over time the widespread infestation is killing some trees, weakening others, and reducing the vigor of extensive hemlock groves in the Commonwealth.

Temperature changes are happening faster at higher elevations than in lowland areas, putting high-elevation habitats under particular stress, and creating ever smaller habitat 'islands' for cool-adapted species. But by no means are climate-vulnerable species limited to ridgeline forests: some of the most sensitive species include freshwater mussels and cold-water fish such as the native brook trout, the state fish of Pennsylvania.

Climate Change Tomorrow

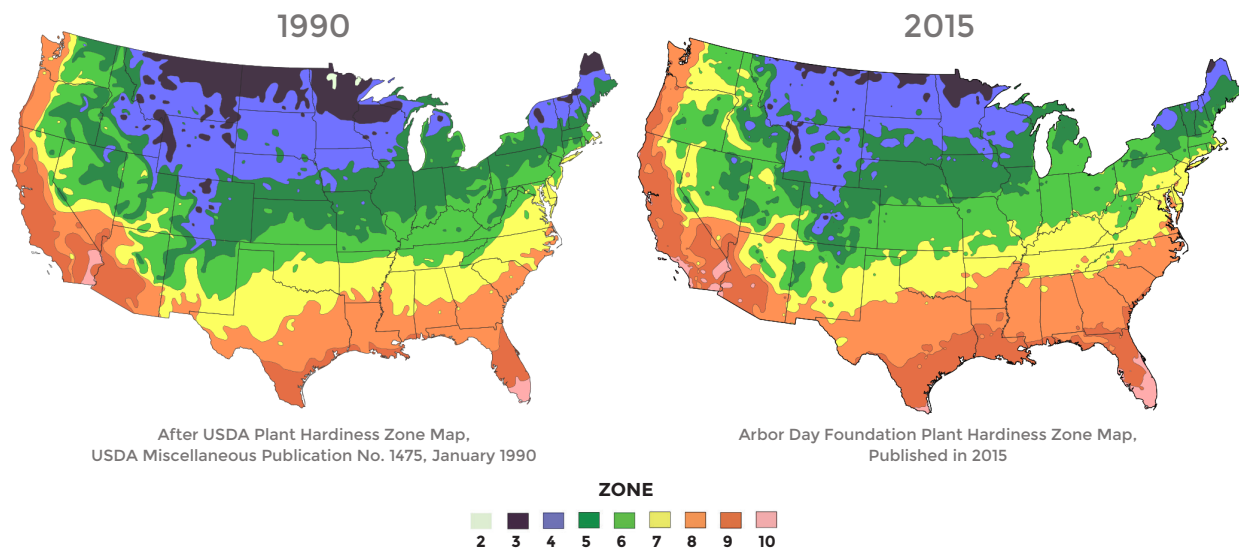
Continued increases in temperature are expected. Penn State, as well as federal agencies, project that global warming could increase the region's temperature levels by 5°F or more by the end of the century. Precipitation patterns are also expected to change. The droughts seen in other parts of the U.S. are not anticipated here; rather our region is expected to see less snowfall, earlier spring thaws, higher winter river flows, changes in the frequency and length of droughts, and lower stream flows in summer and autumn. The warming trend, in combination with altered precipitation patterns, will affect our forests, wetlands, and other native plant communities and the broader ecosystem communities built around them.

As species respond to these ongoing changes in their environment, many will gradually vacate areas that they no longer find suitable. Those that are able to disperse will colonize new areas where they previously were not found. Over time many species are expected to shift to higher elevations and more northern locations than where they are found today. For some species, the shifts in their ranges will be dramatic. Climate scientists are beginning to project that two iconic species, our state bird and state fish, will both suffer great range losses in Pennsylvania.

WHAT CAN WE DO ABOUT IT?

Can we identify and protect the places that will be the critical refugia for climate-sensitive species? Can we buffer the effects of climate change by adopting new ways of managing our land and water resources? Will we succeed in maintaining our native species in Pennsylvania and along the Kittatinny Ridge? What more do we need to do to ensure success? For more information on climate change and how to protect the Ridge, visit: www.kittatinnyridge.org/protect/climate-change-resources

PLANT HARDINESS ZONE CHANGES



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