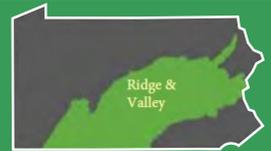


# Managing for Forest Resilience in a Changing Climate

A Factsheet for Forest Landowners in the Ridge and Valley Region



## Your Forest and Climate Change



*Climate change is impacting our forests. The Bureau of Forestry recommends taking steps to establish forests resilient to a changing climate.*

## Current and Projected Climate Shifts

*Pennsylvania's climate has already warmed by 1.8°F since the early 1900s. Scientists know the rate of warming is accelerating and expect as much as a 5.9°F increase by 2050.*

*Average winter temperatures are increasing more than any other season, by 1.3°F per decade since 1970.*

*Our climate has also become wetter. Average annual rainfall has increased 10% over the last century and heavy downpours have increased by 71% in the north-eastern US.*

*The following information identifies potential forest vulnerabilities to climate change and management strategies to encourage forest resilience.*

## Forest Vulnerabilities

- New forest pests and greater impact of existing forest pests
- More invasive plants
- More fungal outbreaks
- More windthrow
- More soil erosion



- Streambank destabilization
- Changing forest community
- Unpredictable seasonal temperatures and extremes

## Management Strategies

- Increase vigilance for forest pests, invasive species, and pathogens (with aggressive follow-up)
- Protect existing forests
- Reforest deforested lands
- Ensure biodiversity through a mix of age classes
- Plant a diversity of native trees, including known climate resilient trees in your region
- Work with your county service forester and consulting forester to create a forest management plan

## Resilient Trees

**Oaks:** white, chestnut, black, chinkapin, scarlet, pin, N. red

**Hickories:** bitternut, mockernut, pignut, shagbark

**Other:** black walnut, sycamore, elms, black gum, eastern redbud, persimmon, sweet gum, hackberry, sassafras, Virginia pine, black locust, Am. holly, yellow poplar, flowering dogwood, Am. beech

## Trees at Risk

**Aspens:** big tooth, quaking

**Birches:** black, paper, yellow

**Spruces:** black, red, white

**Other Evergreens:** hemlock, red pine, table mountain pine, white pine

**Other Deciduous:** striped maple, mountain maple, fire cherry, black cherry, basswood, serviceberry, swamp white oak

\*Resilient and At Risk lists are based on modeling by the USDA Forest Service. With all models, there is some uncertainty. Some species may fare better (or worse) in different settings depending on prevailing ecological factors at the site. Landowners should enhance diversity to improve climate resilience and not necessarily limit their management decisions based solely on these models.

## More Information

**DCNR Bureau of Forestry**  
[PaForester@pa.gov](mailto:PaForester@pa.gov)  
717-787-2703

**DCNR's Climate Change Page**  
<https://www.dcnr.pa.gov/Conservation/ClimateChange/Pages/default.aspx>

**Service Forester Directory**  
<https://maps.dcnr.pa.gov/landownerassist/>



**pennsylvania**  
DEPARTMENT OF CONSERVATION  
AND NATURAL RESOURCES  
[www.dcnr.pa.gov](http://www.dcnr.pa.gov)