

This developing plan content is under construction and is being shared as a snapshot of thinking. Additional changes based on Forest Service and public input are expected.

Climate Change

Background

Forestlands across the Southern Appalachians are experiencing increased threats from fire, insect and plant invasions, disease, extreme weather, and drought. Scientists project increases in temperature and changes in rainfall patterns that can make these threats occur more often, with more intensity, and/or for longer durations. By using sound natural resource management practices that keep predicted future conditions in mind, the Forest Service can promote the immediate and long-term health of its forests. Ecozone abundance and distribution will be different as climate changes. Human use of the forest will change, including where the public uses the forest and how many people. Climate change is occurring at a global scale. While the Nantahala and Pisgah consider climate change and its impacts on the Forest, there are factors outside of Forest Service control.

Desired Conditions

- The Nantahala and Pisgah are resilient to changing natural disturbance regimes (e.g., drought, wind, fire, landslides, insects, and pathogens), allowing for adaptation of plant communities, structure, and ages across the landscape.
- Ecosystems continue to provide supporting and regulating ecosystem services¹ under changing and uncertain future environmental conditions. These resilient ecosystems provide a wide range of ecosystem services for local, regional, and national needs.
- Ecological conditions for habitat quality, distribution, and abundance contribute to self-sustaining populations of terrestrial and aquatic plants and animals.
- Sustainable recreation sites are managed to accommodate increased visitation to the Forests. Recreation sites are designed within the natural character of the landscape, considering increased disturbance risk (particularly flood risk).
- Water resources resilient to disturbances and are used sustainably.
- A range of geological settings are conserved at varying elevations to provide niche opportunities for a diversity of species to adapt to changes in climate.
- Mineral resources essential for technology are available to build and sustain the infrastructure for climate change mitigations such as renewable energy (wind, solar, biomass, geothermal), greenhouse gas reduction, air pollution control technology, and carbon capture and sequestration.
- Renewable energy opportunities are considered, such as biomass, firewood, hydropower, geothermal, wind, solar.

¹ Ecosystem services including supporting services (such as nutrient cycling, soil formation, primary production), regulating services (carbon, air quality, climate regulation, water regulation, erosion regulation), cultural services (land use, aesthetic values, spiritual and religious values, recreation and ecotourism) and provisioning services (forage, forest products, fresh water).

Management Approaches.

- Maintain a suite of adaptation and mitigation options to manage in the face of uncertainty.
- Use forest management practices to reduce susceptibility of forest stands to water stress, insects and disease outbreaks, and wildfire.
- Identify and emphasize maintenance and restoration in the microsites most resilient to changing conditions, considering geological settings as well as biological characteristics.
- Where there are species at risk that are susceptible to the effects of climate change, promote activities that support suitable habitat enhancement.
- Consider future climate and potential species range shifts when planning restoration projects.
- Monitor for new invasive species moving into areas where they were traditionally not found, especially in high-elevation communities.
- Restore native vegetation in streamside zones to provide shade to moderate increases in water temperature and stream flow that could decrease water quality and harm native trout populations.
- Anticipate and plan for disturbances from intense storms. Preparation for intense storms includes controlling soil erosion, relocating high risk roads and trails, and constructing appropriately sized culverts and stream crossings, and maintaining forest health and diversity.
- To maintain genetic resiliency, consider locally adapted genotypes for use in restoration projects.