

# FORESTRY IN A CHANGING CLIMATE

## HOW WE MANAGE FORESTS IN THE FACE OF CLIMATE CHANGE

Climate change will impact forests both directly through extreme weather and rising temperatures, and indirectly by increasing stress, pests, and pathogens. Understanding the main stressors affecting our forests helps inform the actions needed to address them. Each forest is shaped by its unique conditions, such as soil, site features, elevation, climate, and past land use, all of which play a critical role in determining forest *resilience*—the capacity of a forest to recover and resist damage or stress after a disturbance.



Forests with similar tree age, species composition, and canopy structure—or those degraded by past land use—may be more vulnerable to stressors.

Forests with greater diversity of age species, and structural complexity have increased resilience due to more recovery pathways in response to stressors.



Through thoughtful management actions—both passive and active—we can enhance, protect, and support the characteristics that will help maintain forests as functioning ecosystems, meeting social, ecological, and economic needs well into the future.



Adaptive Silviculture for Climate Change: Site Tour with Assisted Migration Plantings

## ENHANCING FOREST RESILIENCE

FPR works with partner organizations including the Northern Institute of Applied Climate Science (NIACS), University of Vermont (UVM), Audubon VT, Vermont Woodlands Association (VWA), and other partners to steward our forests in the face of a changing climate.

Incorporating climate adaptation into our planning may involve strategies like enhancing forest complexity through silvicultural treatments, planting Vermont tree species from southern sources better suited to future conditions, creating a mosaic of young, mature, and old forests to increase carbon intake and storage, and protecting rare and unique habitats.

## CLIMATE ADAPTATION ACTIONS AT A GLANCE

- **Keep forests as forests** to promote connected landscapes that facilitate species to move as conditions change.
- **Minimize forest stressors** like the level of invasive plants, insects, and pathogens; ensure that soil is abundant in organic matter, minimize compaction and erosion; and protect water resources with forested buffers.
- **Support high forest complexity**, including:
  - Diversity of tree species.
  - A range of sizes and ages of trees.
  - Ample regeneration of future-adapted species to maintain and promote those better suited to future conditions
  - Varied tree arrangement (e.g., canopy gaps, clusters).
  - Adequate deadwood (standing and downed logs).
  - Protection of rare, unique, and at-risk species.

Adapted from *Increasing Forest Resiliency for an Uncertain Future* by Catanzaro, D'Amato, and Huff



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