Adaptation tactics and anticipated co-benefits

Green Mountain Audubon Center Adaptation Demonstration Project

forestadaptation.org/Green-Mt-Audubon

This project used the menu of forest-carbon management adaptation strategies and approaches developed by the Climate Change Response Framework at the Northern Institute of Applied Climate Science. Find forest carbon management adaptation resources at: ***forestadaptation.org/carbon***

Tactic	Approach	Anticipated co-benefits
Maintain current extent of forested area, including early successional and mature forest	1.1 Avoid forest conversion to non-forest land uses	**Forest bird habitat:** Maintains extent and quality of bird habitat **Climate adaptation:** Maintains existing tree species diversity **Carbon mitigation:** Maintains existing carbon sequestration capacity
Using forwarder during harvest operations and position landing sites adjacent to the road (rather than within forest)	2.1 Reduce impacts to soils and nutrient cycling	**Forest bird habitat:** Maintains interior forest bird habitat **Climate adaptation:** Minimizes non-climate stressors; reduces risk of erosion during extreme rain events **Carbon mitigation:** Protects soil carbon stocks
Control of non-native invasive plant populations using mechanical removal (preferred), herbicides, or targeted goat grazing	2.3 Prevent the introduction and establishment of invasive plant species and remove existing invasives 2.5 Reduce competition for moisture, nutrients, and light	**Forest bird habitat:** Native plant populations support greater insect food resources and higher-quality cover **Climate adaptation:** Maintains native plant diversity, which enhances forest resistance and resilience **Carbon mitigation:** Maintains carbon sequestration capacity of forest lands and natural ecosystems

If EAB impacts occur, use insecticide on a small number of ash trees to preserve ash component on landscape	2.4 Maintain or improve the ability of forest to resist pests and pathogens	**Forest bird habitat:** Increases tree species diversity and potential food resources for birds **Climate adaptation:** Increases opportunities for species diversity recovery in the future **Carbon mitigation:** Reduces carbon losses, potentially enhances future carbon gains
Maintain no-harvest reserve area where forest is allowed to succeed to larger size classes	4.2 Establish reserves on sites with high carbon density	**Forest bird habitat:** Provides old-forest interior bird habitat **Climate adaptation:** Maintains landscape diversity; potential refugia **Carbon mitigation:** Maintains carbon in high carbon density stands
Implement forest harvest (such as group selection and expanding gap harvests) in northern hardwood stands and in sugarbush to maintain or increase tree species diversity and improve tree growth	2.4 Maintain or improve the ability of forest to resist pests and pathogens 3.5 Alter forest structure to reduce severity or extent of wind and ice damage 6.6 Promote species and structural diversity to enhance carbon capture and storage efficiency	**Forest bird habitat:** Increases vertical structure, providing more cover and nesting sites. **Climate adaptation:** Improves tree health and vigor to enhance forest resistance and resilience to a variety of climate-related stressors **Carbon mitigation:** Improves tree health and vigor of the residual stand to maintain long-term carbon stocks and maintain/enhance sequestration rates
In actively-managed stands, use silvicultural practices (single-tree selection, crop-tree release, and thinnings) that promote the quality of red maple, white pine, black cherry, and other native species for sawtimber	5.1 Prioritize sites with low vulnerability to carbon loss for maintaining high carbon density 7.1 Favor existing species or genotypes that are better adapted to future conditions	**Forest bird habitat:** Increases habitat quality and complexity through enhanced species and structural diversity **Climate adaptation:** Promotes native species that are expected to be better-adapted to future conditions **Carbon mitigation:** Reduces risk of long-term carbon losses by favoring lower-risk species; may increase provision of long-lived wood products

In actively managed stands, increase stocking levels by allowing trees to get to larger size classes	6.2 Increase stocking on well-stocked or under-stocked forest lands	**Forest bird habitat:** Maintains interior forest bird habitat **Climate adaptation:** Maintain structural diversity **Carbon mitigation:** Increases carbon stocks within managed stands
Promote northern red oak component in areas where the species is present	6.6 Promote species and structural diversity to enhance carbon capture and storage efficiency	**Forest bird habitat:** Increases tree species diversity and potential food resources for birds **Climate adaptation:** Promotes native species that are expected to be better-adapted to future conditions **Carbon mitigation:** Reduces risk of long-term carbon losses by favoring lower-risk species