

Climate-Oriented Forest Management Guidelines – Comments by The Nature Conservancy

What role should humans play in optimizing carbon storage and sequestration in forests? To advance other objectives such as clean water, habitat for rare species, or wood products?

1. The Nature Conservancy (TNC) supports a mix of forest reserves and sustainably managed forests, on both public and private lands, as the best way to maximize the contribution of forests to address climate change – a Wildlands and Woodlands approach.
2. The most important actions to support the range of forest benefits are **to protect forests (land acquisition), and reduce the rate of forest loss in MA**, recently estimated at about 5,000 acres/year, and as much as 7,000 acres/year over the past 20-30 years.
 - We need to keep forested landscapes forested, into the future, especially forests that are large, resilient, and well-connected such as those defined in the new BioMap.
 - This will optimize carbon benefits as well as secure clean drinking water, reduce flood and drought risk, provide habitat and biodiversity, provide opportunities for recreation and access to nature, and ensure a supply of wood products.
3. TNC helped lead the process of developing the [“Combined climate-smart practices list”](#) that includes 14 forest management practices that attempt to balance the trade-offs between carbon stocks and forest resilience, including in degraded lands that are in need of restoration. We suggest drawing from this list where possible.
4. Optimization: In terms of optimizing carbon storage, sequestration, and other forest values, the goal should be to optimize all of these values across the ~3,000,000 acres of forest in the state, prioritizing different values on different parcels. We should NOT try to optimize all values on each individual parcel. It will take focused effort to distribute and define values for the many parcels in the state, under different ownerships, but there are tools and precedent to do so. For example, the DCR Landscape Designations distributes these values across ~300,000 acres of State Forests and Parks. And BioMap defines biodiversity values to lands and waters across the state.
5. Regarding habitat, our forests and other ecosystems should be managed for the full range of habitats in Massachusetts that support thousands of native species. This is true for the state’s 400+ rare species, as well as the diversity and abundance of all native species, which includes thousands of plant species, approximately 200 breeding birds, along with mammals, fish, reptiles, amphibians, insects, fungi, and other taxonomic groups, many of which are not yet fully documented. This biodiversity requires large, intact, connected, and functional ecosystems, which support natural processes that allow individuals and populations to move and adapt over long time frames. This will require a diversity of management types, including both active and passive forest management, i.e. both true forest reserves/wildlands, and actively managed forests.
 - Our state’s rare species require a variety of habitats, and some need active restoration and management to survive and thrive. Our Natural Heritage and Endangered Species Program, with others, does an outstanding job defining and implementing these practices.
 - For thousands of other native species in MA, we need to, again, ensure we protect resilient forest landscapes, and designate some as reserves.

What is your definition or concept of forest reserves? What, if any, is the role of human intervention in maintaining reserve conditions?

1. TNC's definition of Forest Reserves is where natural processes are the dominant force defining forest structure, composition, and ecological processes. We also support the definitions in both the "*DCR Landscape Designations and Management Guidelines*", and the recent "*Wildlands in New England*" report (Harvard Forest et. al), which we consider analogous to our simple definition, but are more detailed and nuanced.
2. The definition of forest reserves is NOT about specific age classes, structure, or composition, it's about a specific management regime. Old growth conditions are one desired outcome of reserves, and in some cases of active management.
3. It is important to keep forest management categories clear, concise, simple, and mutually exclusive. The *DCR Landscape Designations and Management Guidelines* uses "Reserves", "Woodlands", and "Parklands", and this paradigm has stood the test of time, and has provided clear guidance to agency staff, stakeholders, and the public. These three categories limit ambiguity and maintain clarity.
4. While the Nature Conservancy is supportive of intervention/forest management to achieve specific forest conditions OUTSIDE of forest reserves, intervention should only be used WITHIN forest reserves in extreme situations, and only with the review and approval of an external committee of experts, analogous to DCR's Forest Reserve Science Advisory Committee. Examples of extreme situations include to ensure public safety, to suppress a novel forest pest that threatens a much larger area of the state's or region's forests, or to replace a non-native plantation with native vegetation.
 - a. If the desired outcome for a specific forest requires the restoration and maintenance of a specific forest structure and composition (e.g. to support a specific rare species or suite of rare species) that forest should not be designated as a reserve. The forest should be designated in another category (e.g. woodlands, per the *DCR Landscape Designations and Management Guidelines*). This will keep the reserve definition clear. In other words, forest reserves that are open to intervention for specific desired outcomes confounds and confuses the forest reserve definition and the designation of lands into specific categories.
 - b. There will, of course, be extreme situations that are the exception to this rule as mentioned above. If a novel pest or pathogen that threatens to spread and degrade additional forest is identified in a forest reserve, suppression treatment should be allowed. However, this does not include pests and pathogens that have become endemic. For example, forest reserves that include oaks that have been impacted by spongy and winter moths, hemlocks that have been impacted by hemlock wooly adelgid, etc. should not be proactively harvested or salvage logged following mortality. The same is true for reserves that experience tree damage from extreme weather events such as tornados or hurricanes, unless specific areas of downed trees threaten public safety.

According to the [Massachusetts Climate Change Assessment \(2022\)](#) *degraded forest health is expected due to warming temperatures, changing precipitation, increasing pest occurrence, and more frequent and intense storms*. What types of forest vulnerability do you think require effort to preserve, protect, fortify and/or enhance our state forest lands? What management practices or approaches do you suggest to make the forests of Massachusetts more resilient to the conditions projected by the Climate Change Assessment?

1. The vulnerabilities listed will be partially mitigated by protecting large, intact and resilient forests and reducing forest loss. These landscapes will support the ability of plant and animal species to adapt and evolve over time and in response to climate changes and other threats.
2. We understand that DFW, DCR, and DWSP require flexibility to adaptively manage their lands to meet their organizational and mandated goals, including the emerging goal of managing forests for carbon benefits and climate adaptation. This includes responding to forest health issues, natural disasters and unanticipated situations. Reducing threats such as invasive plants, insects, and tree diseases, and controlling deer overabundance, will help our forests to be more resilient. These actions on public lands require public trust that it will be done conservatively and appropriately. As stated above, there are different allowable management thresholds for forest reserves and non-forest reserves. In forest reserves, proactive management should NOT be undertaken, except with rare exceptions as stated in the answer to question #2.

General:

1. Research: Forest reserves not only provide the benefits of carbon sequestration and storage, soil formation, biodiversity and others, but a key benefit is as a research opportunity, especially when compared to actively managed forests. Building on DCR and DFW's ongoing research, our state should invest research and monitoring to inform our forest strategies going forward.
2. Publicize: At the recent public meeting our state's forest conservation successes we're mentioned by several stakeholders, and were compared with other states. We should document and make clear to the public the forest conservation successes we have achieved, the opportunities and benefits they provide, and the need for public support.