Actively Managing Your Woodlands for the Future

by Jacob Muller

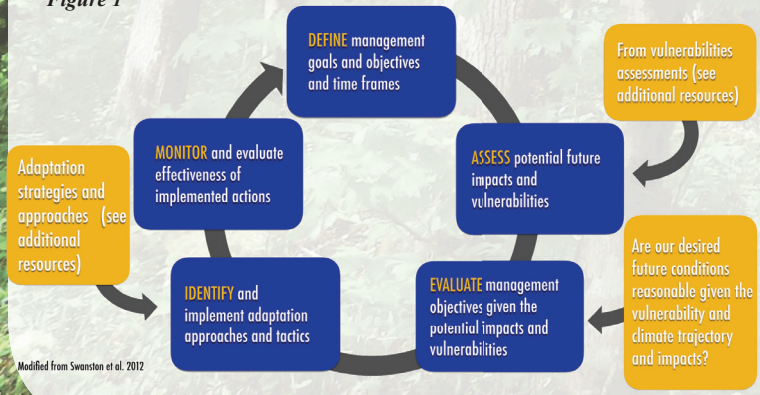
As woodland stewards, we want to ensure that our woods are healthy, sustainable, and productive long into the future. We know that the management decisions we implement today will play out over years and decades to come, and many of those decisions may not be understood and valued until years down the road. Woodland management and stewardship require us to continually assess current growing conditions while also understanding that climate and forested ecosystems are not maintained by static processes. Because of this, we need to consider long-term management scenarios, and understand that in 50 or 100 years, our woodlands may look a little different than they do today.

We are still learning about future climate change in Kentucky and what it will mean for our woodland owners and forestry professionals. Climatologists and earth scientists use sophisticated models to simulate future shifts in the climate, while forest and landscape ecologists apply those models (and create new models) to determine potential effects on trees and woodlands. Most researchers agree that our woodlands across Kentucky will be affected by future climate change in one way or another.

In the decades to come, we will likely experience expanding growing seasons, longer and more intense fire seasons, increasing risk of flooding due to large episodic rain events, and more severe and impactful droughts across the state. This means that trees and woodlands will also be affected in the future, both directly and indirectly from shifts in the climate. In certain regions of the state, a longer growing season may actually increase productivity and profitability of your woodlands. In fact, many tree species in Kentucky are already seeing a longer growing season by a week or two. However, longer growing seasons may also mean there is potential for adverse effects to our woodlands. One particular concern of forest health experts is the potential for invasive insects to complete multiple life cycles in one year, thus increasing their spread and compounding our mitigation efforts. Additionally, milder winters may also mean that many insect pests are able to survive year around, creating multi-year outbreaks. All of these things act together to amplify insect damage and make pest control more difficult and expensive.

The impacts of climate change will not be evenly distributed across the Kentucky landscape. Western Kentucky woodlands face different risks than eastern Kentucky woodlands. However, regardless of forest and woodland type, we can utilize specific adaptation approaches and options to help us all prepare for the future. Using the adaptive management framework (Figure 1), we can conceptualize our management objectives and decisions in the context of a changing system. Additionally, we can implement a range of adaptation strategies in our woodlands to help us prepare for the future, such as focusing our efforts on increasing species and structural diversity, being proactive to protect our woodlands from current and future invasive pests, and, ultimately, engaging in active, adaptive management approaches to woodland management (Figure 2).

Figure 1



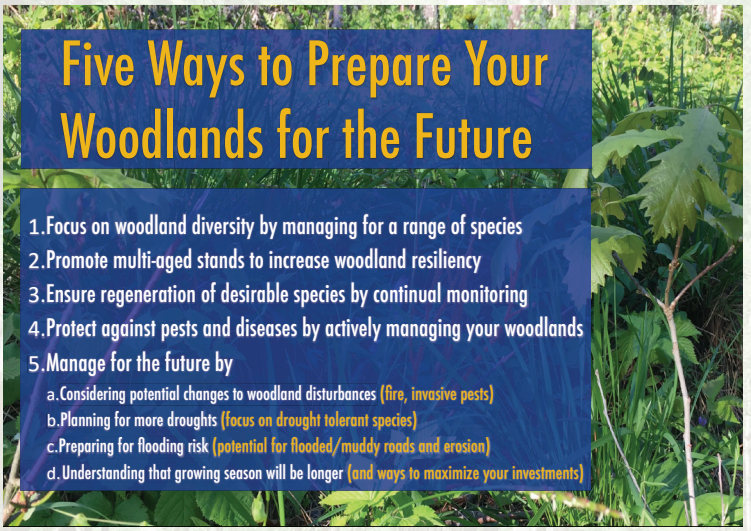


Figure 2

This information isn't intended to cause worry or cast doubt on your ability to sustainability manage your woodlands. We know your woodlands are a valuable resource for you, your family, and perhaps your business, and we want to help you plan for the future. We can all work together to address this challenge by actively managing our woodlands. With some foresight, planning, and preparation, you can help ensure a healthy, productive, and sustainable woodland for generations to come. If you would like more information on this topic, please reach out to UK Forestry and Natural Resources Extension.

For additional resources, see:

https://adaptationworkbook.org/
https://doi.org/10.2737/NRS-GTR-87
https://www.doi.gov/sites/doi.gov/files/migrated/ppa/upload/Chapter1.pdf

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