

CLIMATE TALK

Changing the Climate of Land Management

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Land managers, particularly those managing forests, always have the long term future in mind. Immediate benefits and values, such as, wood fiber, wildlife habitat, scenic beauty, and recreational opportunities, are realized in the context of sustainability.

Sustainable forest management has been predicated on a reasonably certain future allowing managers to invest across decades with little concern for significant change. Today, forest land managers are facing an uncertain climate future which challenges established policies and practices.

The U.S. Department of Agriculture's Forest Service manages more acres of forested lands in the United States than any other entity, ranging from formerly cutover lands in the East and South to vast acreages of high elevation Wildernesses in parts of the West. These national forests provide a full array of benefits desired by the American public, but a changing climate puts many of these values at risk.

Most notable in recent decades has been the effect of wildland fire in the West. Mega-fires have become common. Fire seasons start earlier and end later. Fires are fueled by drought stricken trees. Insect and disease outbreaks, some linked to a warming planet, have further stressed forests.

Receiving less attention, but of great importance, national forests are laced with roads and trails providing much desired access to wild lands. These important pieces of infrastructure often cross rivers, streams, and drainages. Increasingly, episodic rain events have resulted in washouts, blown culverts, and severe rutting often leaving roads impassable for days and requiring expensive repairs.

Five years ago, I served on a team developing an internal "climate change scorecard" for my agency. We focused on activities to help us be "climate change ready." Science-management partnerships were key. Here in the Lake States, we were already on the cutting edge of that kind of work. Forest Service scientists at the Northern Institute for Applied Climate Science (NIACS) partnered with foresters, biologists, ecologists, soil scientists, and hydrologists from the Chequamegon-Nicolet National Forest (CNNF) to develop a first ever "ecological vulnerability assessment." This published document became foundational in our understanding of risk in a changing climate scenario.

Following that work, NIACS scientists and CNNF managers created an additional tool that came to be known as the Forest Adaptation Resource (FAR). Again on the cutting edge, this was a

workbook any landowner large or small could use to work through a set of choices on what to do on their land. Designed not to tell a landowner or what to do nor to guide them to any particular outcome, it helps a landowner assess values, vulnerabilities, risk, and possible actions depending on their tolerance for risk. Consider it much like talking to someone who is investing your money. There is no certainty and some level of risk no matter what you do including continuing to do the same thing. These and additional tools being developed in other parts of the country are helping land managers think through how to develop sustainable practices in a climate uncertain future.

Just down the road near Mellen, The Nature Conservancy is taking climate change to heart on its Caroline Lake preserve. Located 20 miles south of Ashland in the headwaters of the Bad River watershed, TNC managers are working with NIACS scientists to provide a real-world example of how climate change adaptation can be incorporated into sustainable forest management. Using the vulnerability assessment, the FAR workbook, extensive inventory of trees and other plants on the site, and the desire to maintain many of the existing forest types but with an eye to future forests, they have made slight adjustments to typical management actions and are investing heavily in monitoring changing conditions so that additional adjustments can be made in a timely manner. A web site is maintained on this project at: <http://climateframework.org/CarolineLake> for those with an interest in more details.

The Caroline Lake project is a good example of how climate change can be incorporated into the thinking and decision-making of land managers. Because our local forests are at the edge of two major biomes – the boreal forest and eastern temperate forest – they are naturally diverse. Some common species, like jack pine and aspen, are near their southern limits and will likely not be as abundant if warmer conditions prevail in the future. Other trees, such as, white oak and black cherry, are near the north edge of their range and could prosper in a warmer future. Slight versus wholesale adjustments, perhaps favoring some species over others, will be the decisions of many managers as they strive to keep their forests productive and healthy.

The Forest Service has decided to update its internal scorecard and I find myself again on a team helping to develop it. After five years of evaluating the actions on national forests, our state of climate change readiness is high. The new scorecard, while not yet developed, is likely to focus on “climate informed land management” a shift from developing knowledge and tools to taking actions.

What might these actions look like? Slight adjustments, probably, as at Caroline Lake. Perhaps a cross-country ski trail with heavy evergreen tree cover needs some thinning to allow more snow to make it through to the trail or a minor reroute to get it away from a southern exposure where the snow melts in late winter. Campgrounds which need shade might get a greater mix of tree types planted with some adapted to warmer conditions. We’ll likely continue our work from the past decades in identifying road-stream crossings with undersized culverts and installing larger culverts that can handle episodic rain events.

All this will yield greatest results when we work with partners in the crazy quilt landscape of ownership. Right in your back yard this is underway as federal agencies, tribes, the State, counties, Northland College, and non-profit conservation groups work together in the Lake

Superior Landscape Restoration Partnership - “sharing our toys in the communal sandbox” that is the Lake Superior watershed in Wisconsin.

Climate Change Ready to Climate Change Informed Land Management, the U.S. Forest Service continues to develop knowledge and tools to help land managers make decisions in an uncertain climate future.

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