Considering Climate Change in Land Management Plan Revision

Climate changes expected over the next century will have consequences for ecosystems and the benefits they provide, including the provision of wood and fuel, food, temperature and flood regulation, erosion control, recreational and aesthetic value, and habitat, among others. Climate changes are likely to affect ecological processes that will, in turn, affect key natural resources. National Forest management must adapt to the changing climate. To this end, the Forest Service is incorporating the best available ecological and climate science into plan revision to ensure that the Lolo National Forest continues to produce benefits that the American people enjoy.

What does the 2012 Planning Rule require?

The 2012 Planning Rule requires that the Forest Service consider climate change as a system stressor in the development of the assessment, as well as when developing plan components that provide for ecological sustainability.

Ecological Integrity and the Diversity of Plant and Animal Species

One substantial change in land management plans being developed under the 2012 Planning Rule is the explicit focus on maintaining ecological integrity through restoration of natural resources and making National Forest lands more resilient, particularly to climate change. Ecological integrity concepts apply to both terrestrial and aquatic ecosystems. The revised plan will focus on re-establishing or maintaining the composition, structure, pattern, and ecological processes necessary to facilitate terrestrial and aquatic ecosystems sustainability, resilience, and health under current and future conditions. This will require identifying key aspects of ecosystem structure and function and analyzing systems at a landscape scale. In doing so, the Forest Service will consider the impacts of climate change on the ecosystem and set forth plan components, including desired conditions, that are designed to be resilient to these impacts. The resulting array of integrated ecosystem level components would provide the habitat conditions required by native plant and animal species. Where needed, additional species-specific components may be developed to address specific habitat requirements.

Figure 1. Diamond Lake on the Lolo National Forest. USDA Forest Service Photo by Debra Regan

Ecosystem Services and Multiple Use

The Planning Rule also requires that a revised plan include integrated plan content that provides for ecosystem services and multiple uses, including outdoor recreation, timber, watershed, wildlife, and fish. Under this requirement, the Rule lists climate change as a system driver that must be considered. Beneath the broad category of multiple uses, required topics listed in the planning regulations include (but are not limited to) sustainable recreation, watersheds and water resources, rangelands, timber, scenery, cultural and historic resources, and areas of tribal importance. Plan development must consider the potential impacts of climate change on all of these topics.

Timber

The 2012 Planning Rule requires that the responsible official identify the lands that are suitable for timber production and harvest, and to estimate expected timber thresholds and outputs. Climate change considerations play a role in this work. The Rule points to the criteria found in the National Forest Management Act to identify suitability for timber production. These criteria include determining whether lands are forest lands; and whether they can be re-stocked (re-forested) within five years following harvest. The Forest Service uses information related to existing and expected future climate conditions when making these determinations.

Monitoring

In addition, the revised plan will include a monitoring program designed to evaluate effectiveness of plan direction in establishing and maintaining ecosystems that are resilient to climate change. The effects of climate change could influence adaptive management strategies as more information comes available regarding specific changes in temperature and precipitation regimes.

What sources of information will the Forest Service use?

The science associated with climate change is increasingly improving our understanding of potential climate changes and their effects on ecosystems, economies, and social systems. Climate change assessments serve as important syntheses of this science, and they provide information and context for management and policy decisions. Climate change impact assessments identify and quantify the expected impacts of climate change and synthesize the current scientific knowledge of the expected effects of climate change on a focus area, such as a resource, economic sector, landscape, or region, for decades to centuries into the future.

The Northern Rockies Adaptation Partnership is a science-management partnership consisting of fifteen National Forests in the Northern Region of the Forest Service; three National Parks; the Forest Service Pacific Northwest and Rocky Mountain Research Stations; the University of Washington; and numerous other organizations and stakeholders. These organizations worked together over a period of two years to identify climate change issues relevant to resource management in the Northern Rocky Mountains and to find solutions that can minimize negative effects of climate change and facilitate transition of diverse ecosystems to a warmer climate. As part of their effort, the partnership conducted a climate change vulnerability assessment and developed adaptation options for national forests in Montana.

A body of best available scientific information will be compiled for the revision process, considering sources of information provided by the public. The Northern Rockies Adaptation Partnership synthesis report represents one of numerous sources of information on climate change that may be used to inform the Lolo Plan revision.