CLIMATE CHANGE RESEARCH IN WILDERNESS

With the impacts of climate change becoming quickly apparent, scientists from nearly every discipline are calling for more research. Should this research be conducted within designated wilderness? Many have suggested that wilderness would be an excellent place to conduct climate change research because wilderness is relatively unaffected by many of the direct anthropogenic environmental insults that occur in most other areas, so the signal of climate change and its effects may be clearer in wilderness than in other areas. Many wildernesses, because of their higher elevation or latitude, also present extreme climates that might serve as sentinels or an early warning of the effects from climate change. Others argue that since climate change research does not help the agencies preserve wilderness character, any impacts from such research are too great and that there are plenty of areas outside wilderness that offer the same research opportunities. In a nutshell, climate change research epitomizes the acrimony that can develop between different people with disparate viewpoints about research in wilderness. We developed this framework to help sort through these issues.

Our position is that there is nothing inherently incompatible about climate change research, or any research for that matter, being conducted inside wilderness. The importance and urgency of understanding the effects of climate change, however, does not exempt scientists from adhering to the legal requirements of the 1964 Wilderness Act. Many potential problems posed by climate change research could be avoided if scientists discuss their ideas and means for accomplishing the research with managers early in the proposal development process.

Assuming that there are no red flags from the Initial Review Filter, and that the proposal is written well and passes the Quality of Proposal Filter, the major concern is whether the research requires a use or activity that is prohibited by Section 4(c) of the Wilderness Act. If no prohibited use or activity is proposed (for example, there are no installations and no use of motorized equipment), then the impacts and benefits of the research are evaluated in the Impacts and Benefits Filter and a decision reached about whether to permit the work. Say, for example, field research will map the distribution of current treeline to observe how it changes over time to test climate model predictions across a variety of latitudes. This research has minimal impact from the researchers mapping treeline, and provides clear benefits to science by improving the climate models. Such research would likely be permitted even though there are temporary impacts to the solitude quality of wilderness character from the presence of the researchers and there is no immediate benefit to preserving wilderness character, other than understanding the current distribution of treeline.

In contrast, if a Section 4(c) prohibited use or activity is proposed, a much higher bar is raised for the research to be permitted. For example, researchers might want to install permanent data recorders to monitor water flow, temperature, precipitation, snowfall, or many others parameters that have importance for understanding the ecological effects of climate change. Or, researchers might want to use motorized equipment to drill and remove lake sediment cores to compare with the predictions of climate models about how the vegetation and disturbance regimes such as fire have changed over time in the area surrounding the lake. Both examples violate Section 4(c) and are therefore illegal unless they can be proven to meet the “minimum necessary” criteria discussed in the Legal and Policy Filter. These criteria are:

- The research is wilderness dependent;
- The prohibited use or activity is the minimum necessary; and
- The research helps preserve wilderness character.

If the scientists can document how their prohibited activities (installations and motorized equipment in this case) meet this legal requirement, the manager would next evaluate the proposed research in the Impacts and Benefits Filter to determine the "minimum activity" to accomplish the research. In some cases, however, the research may meet the first two criteria but not the third, or at least not provide immediate benefit to preserving wilderness character. In such cases, we recommend moving forward to the Impacts and Benefits Filter to evaluate whether the benefits outweigh the impacts.

In every case where proposed research involves a Section 4(c) prohibited activity, the immediate impacts to wilderness character are great and the benefits would also need to be great for the research to be approved. The Impacts and Benefits Filter provides the opportunity for the manager and scientist to discuss specific requirements to minimize these impacts. These requirements, for example, might include camouflaging an installation in particular ways or suggesting other locations that would satisfy the research criteria but be less obvious to wilderness visitors. In some cases, these options to minimize impacts may also reduce the quality of the data, thereby reducing the potential benefits of the research. Such cases require close communication and cooperation between scientists and managers to discuss various options and their effects on both impacts and benefits. To avoid acrimony and hassle, the earlier this communication occurs, the better.

Hostility between climate scientists and wilderness managers would only add to the many tragedies caused by rapid climate change. Both groups share many values and goals centered on understanding and preserving the natural world. Climate scientists may feel that wilderness is the best place to conduct their research, while wilderness managers and advocates may feel that wilderness protection, precisely because of the pervasiveness of environmental threats and global climate change, should not be compromised. One purpose of this evaluation framework is to push both scientists and managers toward upfront communication and mutual understanding—doing so should decrease the impacts to wilderness character while allowing the use of wilderness as a source of inspiration and scientific understanding.