

The Draft RMP and EIS Failed to Analyze the Impacts of Climate Change to the Resources of the MFO

There is broad scientific consensus that climate change is occurring, with sweeping changes that will affect all portions of the Earth, including the Moab Field Office. Yet the plan and EIS fail to mention, much less analyze, predicted changes in the Colorado Plateau. This omission is a significant oversight given that federal departments and agencies including the Department of Interior, the Environmental Protection Agency, and U.S. Geological Survey have all published reports and/or provided public statements and congressional testimony acknowledging the impacts of climate change on public lands resources. This oversight amounts to a failure to take the necessary “hard look” at the challenge of resource management in the MFO, and an important aspect of that problem.

There is little doubt about whether the BLM is aware that climate change is an issue. Earlier this year, Department of Interior Deputy Secretary Lynn Scarlett told the House Interior Appropriations Subcommittee that global climate change could dramatically reshape America’s public lands with increased species extinctions and wildfire. Scarlett is quoted in media stories as saying, “On the ground, we’re seeing a lot of changes . . . some of them dramatic.” See <http://www.earthportal.org/news/?p=93>. Ron Huntsinger, the BLM’s own science coordinator, said, “[w]e can anticipate further reductions in the level of allowable uses on public lands due to the loss of productivity and capacity . . . The results are more fragile ecosystems, a greater susceptibility to the outbreaks of attacks by parasites and disease, increased vulnerability to wildland fire and erosion and an overall reduction in the carrying capacity of the land.” Id. (Ironically, this same article notes that “BLM and the Forest Service . . . considering climate change when they development management plans for individual units,” which is demonstrably untrue in the case of the Moab draft plan.)

The BLM’s observations and predictions coincide with the findings of an array of climate specialists and other scientists. (We have provided just some of these studies as an attachment to these comments.) For example, a recent study by the U.S. Geological Survey predicts that precipitation in the upper Colorado River basin, which includes the Moab FO, will decrease by 15-20%, and that temperatures will rise by 4-6 degrees Celsius due to climate change. See U.S.G.S., “Impacts of Climate Change on Water and Ecosystems in the Upper Colorado River Basin,” August 2007. Increased temperatures are expected to decrease runoff by as much as 30%, with dry soil conditions worse than those experienced during the Dust Bowl and subsequent droughts. Id. In fact, dust storms are predicted, some of which obscure highway visibility and create safety risks. These predictions are conservative. Id.

The report further notes that soil disturbing activities such as recreation, grazing and energy exploitation “reduce or remove the natural components that stabilize desert soils [which] increases soil loss through wind and water erosion.” Id. These uses also enhance the invasion of exotic vegetation, which are much more likely to exacerbate the frequency and intensity of wildfire. Id. This creates a feedback loop in which soil disturbance decreases ecosystem resilience to land use impacts [like roads and ORV use]

and further increases the frequency and magnitude of erosion events. *Id.* Impacts to riparian areas and the native wildlife that depend on them will be devastating where ORV use denudes soil, creating gullying and dropping the water table too deep for plants to reach. *Id.*

A U.S. Climate Change Science Program working group published a report on September 11, 2007 which predicts and elaborates on the widespread impact of climate change on public lands in areas like the cold deserts of the Colorado Plateau. See “The effects of climate change on agriculture, land resources, water resources and biodiversity,” <http://www.climatescience.gov/Library/sap/sap4-3/default.php>. The report notes that “the climate changes that we can expect are very likely to continue to have significant effects on the ecosystems of the United States.” *Id.* at 3. These impacts include:

- Climate effects on disturbances such as fire, insect outbreaks and wind and ice storms are very likely important in shaping ecosystem structure and function;
- Grasslands will transform into woody shrub lands with reduced capacity for water absorption and greater vulnerability to channelization and erosion;
- Droughts early in the 21st Century are likely to increase rates of perennial plant mortality in arid lands, accelerate rates of erosion and create opportunities for exotic plant invasions;
- Proliferation of non-native annual and perennial grass is virtually certain to predispose sites to fire. The climate-driven dynamics of the fire cycle is likely to become the single most important feature controlling future plant distribution in U.S. arid lands;
- Climate change is likely to result in shrinking water resources and place increasing pressure on montane water sources to arid land rivers, and increase competition among all major water depletions in arid land river and riparian ecosystems;
- Major disturbances like floods and droughts that structure arid land river corridors are likely to increase in number and intensity (with associated increases in erosion and native plant loss);
- Land use change, increased nutrient availability, increasing human water demand and continued pressure from exotic species will act synergistically with climate warming to *restructure* the rivers and riparian zones of arid lands;
- Climate change will increase the erosive impact of precipitation and wind;
- Surface soils will become more erodible; and
- Increases in wind speed and gustiness will likely increase wind erosion.

The report also notes that “[g]iven that many organisms in arid lands are near their physiological limits for temperature and water stress tolerance, slight changes in temperature and precipitation . . . that affect water availability and water requirements could have substantial ramifications for species composition and abundance, as well as the ecosystem goods and services these lands can provide for humans.” *Id.* at 9. While these findings are dramatic, the report further notes that “[i]t is likely that these changes will increase over the next several decades in both frequency and magnitude, and it is possible that they will accelerate.” *Id.* at 23.

The BLM should have discussed all of these predicted effects of climate in Chapter 3's assessment of existing conditions and in Chapter 4's discussion of the impacts of the various alternatives. **A strong argument can be made that over the life of the RMP, no other factor will affect the resources of the MFO more than climate change;** it must figure as a prominent aspect of the future management of the area and BLM must demonstrate that it has begun to grapple with the management challenges that climate change presents.

This is more than a theoretical exercise. First, as demonstrated above and in the attachment to these comments, the existence of climate change and its effects on arid lands is no longer a matter of debate, but a matter of scientific consensus. Second, a description of the effects of climate change on existing conditions such as the prevalence of exotic plant species, the availability of water and the health of riparian areas, zones of soil erosion or vulnerability to erosion, all provide critical baseline information necessary to the BLM's ability to determine whether the Moab FO resources can sustain any of the proposed alternatives for either the long or short term. Without this basic foundational information about the existing health of the land, it is impossible to make any informed decision about the level, location and kind of activities it can support in the future.

From this flows the third point, which is that an understanding of the predicted impact of climate change, and the forces that we can expect to affect the Moab FO, would likely shape in important ways the various alternatives under consideration by the BLM. For example, given that so many of the predicted outcomes of climate change center on increased soil erosivity, dust storms, shrinking water resources, loss of riparian areas, invasion of exotic plants, and the spread of hotter, larger wildfires, it is entirely reasonable to expect the BLM to design alternatives that minimize soil disturbance as much as possible. And given that ORVs are associated with both the ignition of wildfires, increased erosion, and the spread of exotic weeds, it is likewise reasonable to expect that the BLM would design – and even designate as preferable – an alternative with far fewer than the 2,600 miles of backcountry ORV routes that the current preferred alternative contains. (We note that one Montana study documented that on a 10-mile ATV course in Montana, 2000 exotic plant seeds were dispersed in just one trip. This study is attached to our comments.) As noted above, the BLM's own science coordinator noted that the effects of climate change should result in an anticipated reduction in the allowed use of certain activities on BLM lands – yet such an option was not presented in the Moab plan. Thus we encourage BLM to adopt Alternative B as the best choice of those presented; however, we strongly urge BLM to design an alternative that would be even more effective in limiting surface disturbance and protect the Moab FO as much as possible from the predicted effects of climate change.

Instead, without the information of about the effects of climate change in the Moab field office, the plan proposes a mix of exactly the kinds of actions that would compound these effects. This is most notable in the BLM's overly-expansive network of roads and ORV trails, which were adopted without analysis after county officials and ORV groups presented the agency with trail map "wish lists." Yet experts note that the "response of arid lands to climate change will be strongly influenced by interactions with non-climatic factors at local scales" including pressure related to the use of motorized

off-road vehicles and grazing. See Ryan, MG “Land Resources” Section of the Climate Change working group report at 8 (attached). See also id. at 35 (noting that grazing may reinforce and accentuate the effects of climate change, a result that is probably true for ORV use as well).

Not surprisingly, the Intergovernmental Panel on Climate Change noted in 2001 that “for the future of rangelands, it is important to reduce the vulnerability of these systems to climate change. This is likely to be achieved by considering social and economic factors that determine land use by human populations . . . Soil stability and thus maintenance of water and nutrient cycles are essential in reducing the risk of desertification. Any changes in these processes could make rangelands particularly vulnerable to climate change.” http://www.grida.no/climate/ipcc_tar/wg2/41.htm. Likewise, BLM’s sister agency, the U.S. Geologic Survey notes that “understanding interactions of landscape with changing environmental conditions, and their relative influence on the severity of drought, are important for natural resources planning and land use sustainability.” <http://geomaps.wr.usgs.gov/navajo/drought.html>.

We have noted elsewhere that the EIS has not discussed the cumulative effects of various uses like ORV recreation and grazing on, for example, riparian areas. These cumulative effects should also be considered in the context of climate change and how these uses act synergistically with these uses to impact the resources of the MFO.

To conclude, we urge the BLM to develop and adopt, based on a full consideration of the effects of climate change on the MFO, an alternative that minimizes the extent of soil disturbance and reduces to the fullest extent the Moab FO’s vulnerability to the effects of climate change.