

**STATEMENT OF
RON HUNTSINGER
NATIONAL SCIENCE COORDINATOR
BUREAU OF LAND MANAGEMENT
U.S. DEPARTMENT OF THE INTERIOR
BEFORE THE HOUSE APPROPRIATIONS SUBCOMMITTEE ON
INTERIOR, ENVIRONMENT AND RELATED AGENCIES
REGARDING CLIMATE CHANGE
APRIL 26, 2007**

Mr. Chairman and members of the Subcommittee, thank you for the opportunity to appear here today to discuss natural resource management and climate change. I am the Bureau of Land Management's National Science Coordinator and as such oversee the application of science in the Bureau's resource management programs.

Background

The Bureau of Land Management (BLM) has the responsibility to manage over 261 million acres of public lands and natural resources for multiple uses by the American public while sustaining the health, diversity and productivity of these resources for future generations. My testimony today will address our natural resource management programs, as well as our own land management activities, in relation to climate change impacts.

Although the issue of climate change is getting increasing attention, the BLM has been dealing with factors related to climate change for decades, as some of these factors intersect with land management responsibilities included in legislation, such as the Clean Water Act, the Clean Air Act, the National Environmental Policy Act and our own Federal Land Policy and Management Act, hazardous materials and hazardous waste legislation, as well as Executive Orders and Agency and Bureau policies and regulations resulting from these mandates. We have also been addressing our responsibilities from additional mandates such as the Endangered Species Act, and agency initiatives such as rangeland and riparian health, and potential climate change impacts.

The BLM natural resource management program takes a comprehensive approach to managing the public lands under our jurisdiction, including addressing factors affecting climate change in the planning process. Through the planning process we identify the current condition of the resources, resource capabilities, and the potential impacts of proposed projects or management initiatives. The plans are designed to have a 15-20 year lifespan and accommodate unanticipated changes through updates and amendments. For a proposed project to be approved it must be consistent with the plan, and under the authorization process we impose whatever operational restrictions are necessary, require mitigation of unacceptable impacts and, if appropriate, restoration of the site at the completion of the project. The final step in the process is monitoring to assure that the

conditions of the permit are adhered to, and the desired outcome is achieved. If it is determined that the resource objectives are not being met, changes can be made to implementation procedures. Through monitoring and evaluation, knowledge and experience are incorporated in to the next planning/management cycle.

The Bureau has reduced energy use and pollutant discharge and conserves natural resources in our business operations,. We are requiring that energy conservation features be incorporated in the design and construction of new facilities, and that existing facilities be retrofitted with these features. We are increasingly using renewable energy sources, such as green energy programs and on-site solar and wind generation installations, in operating our facilities. We are using conservation practices such as low- or ultra-low flow plumbing, energy efficient lighting, recycled water for flushing toilets and landscape irrigation, and native landscaping to further reduce water use. We have also reduced the size of our vehicle fleet, and required that future purchases be of the most fuel efficient vehicles suitable to the job.

Changes that we have seen resulting from climate change

The Bureau has witnessed many changes, which may be associated with climate change, over the past decades in carrying out management programs. One of the most pervasive has been the evidence of desertification as a result of an increase in the frequency and duration of drought. This has been accompanied by reductions in surface flow and groundwater levels, and therefore a reduction in water availability. Changes in flow regimen have resulted in modification of stream channels and channel capacity, and a potentially permanent reduction in groundwater storage capacity. It has also resulted in conversion of vegetative stands to more drought hardy species of plants, accompanied by or resulting from the expansion of non-native and other undesirable species. Vegetative species adaptation has occurred, from changes in growth form to changes in life cycles. In order to survive the dry conditions, plants may respond through changes such as stunted growth or reduced reproduction. Because of the early onset of warm weather conditions they may initiate growth earlier than normal, or, depending on the rainfall or other factors that year, may remain dormant the entire season and not grow or reproduce at all. The effect of these changes has been a reduction in use by both domestic and native animals. This has resulted in the reduction of species numbers, and even the loss of species in the affected habitat.

The overall results of these changes are more fragile ecosystems, a greater susceptibility to the outbreak of attacks by parasites and diseases, increased vulnerability to wildland fire and erosion, and an overall reduction in carrying capacity of the land. In Alaska we have seen increased ablation and melting of glacial masses. We have also seen melting of the permafrost, resulting in loss of soil stability and increased erosion. This impacts such activities as winter road construction in support of economic development, such as for energy production.

There are other environmental impacts from factors resulting in climate change which are less well understood, such as the direct local effects of reduced visibility or increases in the impacts of wind storms. Given the state of our current knowledge, some of the effects are, no doubt, unknown at present

Further changes that we expect from climate change

Based on the models of climate change, and the fact that where the BLM is seeing these changes are in areas experiencing the most rapid growth of human populations in the US, particularly in arid areas such as southern California, Nevada and Arizona, we can expect these changes to continue, and the effects of the changes to increase from what we are seeing today. We may anticipate the loss of critical wildlife habitat, and habitat connectivity, and therefore eradication of both susceptible plant species and of species dependent on these habitats. This could be accompanied by the replacement of native desirable species with less desirable and non-native species, both plant and animal.

There could also be a continuation or possible increase, at least in the short term, of wildland fire hazard due to the low humidity and fuel moisture content of plants, vegetative die-off, and increased temperature regimes and accompanying wind events. There could be additional reductions in available water supply in arid regions, further stressing the natural as well as dependent human systems.

The result is that we can anticipate further reductions in the level of allowable uses on public lands due to loss of productivity and capacity, and changes to dependent human communities both as a direct result of climatic factors and due to loss of economic opportunity.

What we are doing to address climate change factors

We have been dealing with the environmental effects of climatic variability and human activities for decades. Many of these factors are the same as are implicated in what we now recognize as climate change. As a bureau, we are beginning to address climate change as a comprehensive factor in general management planning, and to identify the effects under our cumulative impact analysis in environmental assessments. However, at this point there is little guidance in dealing with this issue, and differences of opinion as to the exact cause-effect relationships. As our knowledge of climate change processes matures our ability to address it will improve.

Additional steps that we are taking at present include changes to both administrative and on-the-ground activities. We are establishing policy and technical committees to address necessary actions and develop guidance to address climate change in agency management practices. For example, the Department has recently initiated the Climate Change Task Force, with subcommittees to address the issue from three perspectives: legal and policy, land and water, and science. Bureau manuals are incorporating guidance on addressing

climate change. The air quality manual, undergoing approval now, is the closest to finalization.

BLM works collaboratively with others to understand climate change causative factors and effects, and to develop methodologies to identify impacts and measures to mitigate, adjust to, and remediate those impacts. Examples of these efforts include cooperating with the Fish and Wildlife Service, National Park Service and other agencies in Alaska on the North Slope Science Initiative to evaluate regional landscapes and the effects of development. Although climate change is not the focus of the effort at this time, it will likely be included as the program evolves, and regardless will provide additional information on climate change effects in arctic systems. We have designated the Bering Glacier as a Research Natural Area to facilitate research associated with glacial melting and how climatic changes are related in changes to that glacier.

We are including appropriate restrictions and mitigation requirements in permitting and implementing public land projects. We are monitoring, to a limited extent, implementation of projects to assure consistency with approved procedures, determine if adjustments are necessary, and determine the outcomes of our management practices. These results will be rolled back into our management programs to improve our management practices.

We are also implementing programs to address climate change on a broad scale. Our rangeland and riparian health initiatives are two examples. Under these initiatives we are identifying areas of Bureau-managed lands that are in less than healthy condition and implementing remediation projects to improve their condition. These projects include modification of permit stipulations, such as changes in grazing use; and improvement projects, such as seeding and invasive species treatments and fencing projects to exclude uses of sensitive habitats. We are participating in a restoration initiative for sagebrush habitat in the Great Basin, which has been extensively impacted by land uses, wildland fire, non-native plant intrusions, and climatic changes.

We are providing opportunities for increased production of renewable energy through permitting of wind, solar and geothermal generation projects, and projects for use of biofuels. At the same time we have reduced the adverse effects of new and traditional energy production and energy transportation through requirements such as reducing the footprint of production and transportation facilities, remediation and restoration of surface disturbances, limitations on activities during critical periods, offsite development of energy in sensitive habitats, and identifying specific utility corridors for energy transportation.

We are developing additional tracking, analysis, and predictive capabilities as well. As examples, the wildland fire program, in cooperation with the other federal agencies responsible for wildland fire management, is conducting a joint fire science program which produces fire response predictive models, and data bases of environmental monitoring and fire suppression data, and information on fire behavior under various climatic conditions. We are participating in realtime climate monitoring through

operation and expansion of our Remotely Accessed Weather System (RAWS) and are cooperating in the Natural Resource Conservation Service snow survey program to assess winter snow loading, and moisture content to predict water availability and spring runoff.

In conducting Bureau activities we are implementing policies and practices that result in reduction of our use of energy and other natural resources, as well as production of pollutants that exacerbate climate change effects. We have issued Instruction Memorandum 2006-2207, which addresses high performance and sustainable buildings. Our standard leasing contract is being revised to require that LEED design on all facilities, contingent on the results of evaluations of three pilot projects requiring LEEDs compliant construction. We are converting from use of fuels which produce relatively greater amounts of air borne pollutants, such as fuel oil and gasoline, to cleaner fuel types, such as biofuels and propane (LPG). These efforts have resulted in a 49.7 percent increase in use of LPG and a significant reduction in the use of fuel oil. We are convening an Energy Conservation Workgroup to further develop our conservation strategies and providing training to field offices on fuel efficiency and alternative fuels. We are complying with Executive Order 13149 by reducing the size of our vehicle fleet, as well as requiring that future purchases be of smaller, fuel efficient vehicles while still being appropriate for the use. A percentage of these vehicles must use alternative fuels. Our new facilities, such as the California Trail Center in Elko, NV, the Pompey's Visitors Center near Billings, Montana, and the Rawlins Field Office in Rawlins, WY are being designed and constructed to take advantage of natural lighting, solar orientation, and natural landscaping, and energy efficient, green construction. Existing facilities are being retrofitted to take advantage of new technologies, such as on-site solar generation, reduced flow plumbing, climate control using ground source heat pumps, natural and energy efficient lighting using more efficient, hazardous material free ballasts and bulbs.

These are just some of the multitude of examples of actions that we are taking that address the issues associated with climate change.

What we anticipate doing to address climate change

The Bureau anticipates that, with the increased focus on climate change, we will place greater emphasis on those factors responsible for the phenomenon in continuing to support analysis and research to address specific questions related to public land resources. As our experience and knowledge increases, and working with other natural resource management and research organizations, we will develop further guidance to address climate change and its effects. We will also continue to improve our analyses of cumulative effects resulting from activities on public lands, and the actions that are needed to address the effects of climate change on natural resource systems functions and uses. We will continue to refine management practices, including monitoring, mitigation, restoration and adaptation, to address the impacts of climate change. And we will continue to utilize conservation practices in carrying out our own activities and programs in managing the public's resources.

Conclusion

Because of our experience in dealing with natural processes and human activities implicated in climate change the BLM is positioned to take the measures necessary in managing public land resources in the future in responding to climate change. We have contributed to, and participated in, numerous efforts to identify climate change factors and their effects on natural resources. But despite all of the efforts up to the present much is still to be learned, including answers to such fundamental questions as how much of the change we are witnessing is attributable to natural changes and how much is a result of anthropogenic effects, and what measures are robust enough and appropriate to reasonably address the impacts of climate change. Answers to these questions have substantial implications for how we respond to the effects of climate change now and in the future.

Thank you for the opportunity to discuss these issues with the committee. I would be happy to answer any questions that you have.