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By fax to 775-861-6689

Re: Clark, Lincoln, and White Pine Counties Groundwater Development FEIS, Great Basin Biological Soil Crusts. Belnap and Lange (see below), Pages 41-43.

Dear Ms. Leuders and Ms. Woods,

Now that the FEIS is out, public hearings on the project are necessary, probably after a proposed ROD is made available to the public.

Our concern about the absence of the necessary regulations for public involvement is unabated.

The FEIS requires a great deal of supplementation.

We focus on the failure of the FEIS to address biological soils crusts in any necessary manner.

The attached Ecological Society of America NEPA and Ecosystem Management series document, "Sustainable Biosphere Initiative Project Office Notes from a Conversation on Ecosystem Management" provides a good framework for our view that the FEIS fails to incorporate known and developing science in all areas defined in the FEIS, including soils and biological soil crusts.

It is necessary and appropriate that the FEIS references on page 3.4-8, the US Department of Interior BLM and USGS document, "Biological Soil Crusts: Ecology and Management," Technical Reference 1730-2, 2001 (referred to in this letter as the "Soil Crusts Technical Document"). This reference is not enough. The failure of the FEIS to reasonably address and use the content of this document is a smoldering NEPA laser pointer highlighting both the FEIS content and its process. The greatly developing level of knowledge about crusts to be found among BLM and other government personnel available to BLM demonstrates that BLM has the capability to fully develop the science and to fully comply with NEPA.

One need look no further than the Section 3.20 Monitoring and Mitigation Summary that does not include measures addressing biological soil crusts. Indeed, is has no section of measures for soils. Chapter 7 of the Soil Crusts Technical Document, "Monitoring Biological Soil Crusts," describes the necessary techniques to monitor crusts.

We are not aware of any efforts to identify, classify, inventory, map and manage project right-of-way and groundwater development basin biological soil crusts that are given the necessary NEPA review.

Chapter 5 of the Soil Crusts Technical Document, "Management Techniques to Maintain or Improve Existing Biological Soil Crusts" concludes:

> Require an analysis of impacts to biological soil crusts and appropriate stipulations on all use applications, such as rights-of-way, oil and gas and other exploration permits, permits to drill, etc.

BLM must become familiar with and apply to this project the rapidly growing science in this area:

> As the importance of these crusts in ecosystem functioning has become apparent, research efforts have intensified, with well over 3,000 publications now available on the biology, ecology, and ecophysiology of soil-crust communities and their components, as well as on applied aspects such as landscape-level hydrology and management. J. Belnap and O.L. Lange (Eds.), Biological Soil Crusts: Structure, Function, and Management, 1st Edition 2001, Revised 2nd Printing 2003, Preface, Page V (Referred to in this letter as "Belnap and Lange").
>
> Without exception, all studies conducted in arid and semiarid regions of North America indicate that biological

soil crusts are effective in reducing soil erosion by water, both from raindrop impact and surface runoff. Belnap and Lange, Page 335.

This suggests that, while biological soil crusts play an important role in preventing wind erosion in all soil types, the protection offered by biological soils crusts is especially critical in coarse soils. Belnap and Lange, Page 345.

With rare exceptions, the presence of biological soil crusts tends to conserve soil moisture. While the effect of moisture conservation has little direct impact on infiltration and erosion, the potential to enhance the germination and growth of higher plants may indirectly contribute to the stability of desert landscapes. Belnap and Lange, Page 356.

Unlike vascular plants, crustal organisms, particularly lichens, are not greatly influenced by short-term climatic conditions. This makes them ideal indicators of long-term environmental factors. Soil Crusts Technical Document, Page 2.

BLM's failure to address biological soil crusts in the manner required by NEPA is ridiculous. Yet, it's far more than ridiculous. The BLM project record in its Reno office documents that in the early stages of planning for and preparing to develop the EIS, a far larger and far more detailed effort to prepare a much more comprehensive document with a larger research base was being planned that also included the input and involvement of a significantly larger number of BLM and other agency employees. It also documents that this effort was abandoned.

Sincerely,

Michael Garabedian, President
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Enclosure: Ecological Society of America, NEPA and Ecosystem Management

Ecological Society of America

◆ Science Resources » Science Office » Tools and Publications

Sustainable Biosphere Initiative Project Office Notes from a *Conversation on Ecosystem Management*
November 20, 1996

3rd in a Series "NEPA and Ecosystem Management"

The timely topic of the National Environmental Policy Act (NEPA) and its role in ecosystem management was the focus of a recent conversation convened by the Sustainable Biosphere Initiative and the Interagency Ecosystem Management Coordinating Group. The discussion group identified ways in which NEPA, a law passed in 1969, could be revitalized and applied toward the goal of insuring long-term ecological health. The participants discussed many of the challenges confronting an ecological approach to natural resource management and identified ways NEPA could further contribute to its successful implementation. Participants in the conversation strongly agreed that the original NEPA document should not be altered in any way. Instead, the group focused on ways that the importance currently placed on the action segments of the policy, namely the completion of an Environmental Assessment (EA) and an Environmental Impact Statement (EIS), could be shifted to other aspects of NEPA more beneficial to ecosystem management.

The necessity of data collection and coordination, readily available scientific information, monitoring and adaptive management, and involving all stakeholders in the process emerged as cornerstones of NEPA's successful contribution to ecosystem management. As evidenced by the points raised in this third Conversation on Ecosystem Management, if used correctly, NEPA has the possibility to enhance current ecosystem management efforts. By identifying future work that must be done, this conversation represents an important contribution to the timely debate about the future of NEPA. General themes which appeared in the discussion are outlined below. Each topic is further divided into the benefits NEPA provides, what is needed to realize these benefits, specific action items that could be undertaken, and the long-term possibilities of using NEPA for ecosystem management.

NEPA's Contribution to the Ecosystem Management Process

Benefits:

- All participants strongly agreed that NEPA is a strikingly well-written and virtually timeless document that provides for discretion in considering a broad array of factors relevant to decision making.
- NEPA's focus on an interdisciplinary approach to investigating the future implications of current actions inherently leads to an emphasis on the sustainability of natural systems, a fundamental aspect of effective ecosystem management.
- The document acknowledges the complexity of issues and wide variety of stakeholders involved in making decisions that effect the environment. Indeed, NEPA has a broad reach, applying to all government agencies, in turn impacting the private sector.

Needs:

- An effort to place additional focus on the sections of NEPA useful to ecosystem management, not only the action oriented sections such as the EA/EIS processes.
- Education for managers and practitioners on the ways that NEPA, though sometimes restraining, can be useful.
- More public involvement in the NEPA process, currently many people are frustrated and feel the process is inadequate. These people must become involved in shaping the process.

Specific action items:

- Issuance of additional Council on Environmental Quality (CEQ) regulations or a Presidential executive order requiring agencies to conform to specified programmatic changes.
- Use of venues such as the "NEPA Effectiveness Study" and "40 Questions about NEPA" to teach practitioners more useful ways to apply NEPA, with emphasis on sections of NEPA other than the EIS/EA process.
- Make it clear that NEPA is not just philosophy that cannot be attained, instead it is a national policy providing the means for implementation.
- Work from "bottom up," using ecosystem management as a tool for finding out what local communities want and then helping them to achieve their goals by using government as a coordinator of issues of scale, including national and international project implications.

Long term possibilities:

- Elimination of subsidies to the private sector would require a focus on long-term sustainability.

The Relationship Between Science and NEPA

Benefits:

- Though much remained to be discovered about the science of ecology at the time NEPA was written, and indeed there is still much research to be done, NEPA provides the context to alter management practices according to a continually changing and expanding knowledge base.

Needs:

- The establishment of baseline information is fundamental for assessing the possible consequences of any action. Particularly, very little information has been compiled on wildlife baselines. This type of information would be very useful for monitoring and evaluation efforts.
- Many new tools and technologies are available; these must be understood and a coordinated exchange of information between communities should be organized.
- Greater outreach efforts to the scientific community; not only are exchanges of existing information not coordinated, but there are many gaps in information on which scientists could focus future research efforts. Academic scientists must be involved in the process.
- Education aimed toward people in the science and advocacy worlds about the role of subsidies in our economy.
- A realization that although people crave certainty, uncertainty is inherent in the science of ecology due to the complexity of natural systems.
- Though people would like ecology to be certain, it is not possible, leading to a mismatch between expectations put on ecologists and what can actually be accomplished.

Specific action items:

- Use organizations such as the Ecological Society of America to inform scientists of what decision makers need, both in terms of tools and information, and foster the sharing of information with governmental scientific organizations such as USGS and NOAA, making sure current scientific information is readily available to decision makers.
- Conduct further research about exactly which ecosystem aspects should be monitored, along with the development of indicators and baseline information, and become involved in training for NEPA practitioners about emerging science and methodologies.
- The scientific community could help us by advocating the expansion of CEQ as a cornerstone in gathering ecological data and use the CEQ annual report, *Environmental Quality*, to bring new issues and methodologies into visibility. Because compiling the annual report is a very complex task, scientists need to get involved in gathering information and producing the annual report.
- The scientific community should be more involved in expressing the importance of NEPA and the history behind why it was implemented in the first place. It is also vitally important for scientists (specifically ESA) to continue to inform decision makers of basic ecosystem principles.
- Invite more academic scientists to be involved in writing papers about specific issues and localities. Though issue papers may not impact policy directly, they have the ability to change how agencies are thinking.

Long term possibilities:

- Begin a shift towards valuing ecosystems by analyzing services provided, rather than solely in terms of dollars.

The Importance of Data Collection and Coordination

Benefits:

- NEPA provides the basis for coordination of information between federal agencies through CEQ.

Needs:

- Though information is not available on all areas, there is a great deal of data on many locales that needs to be coordinated between all sectors.
- The development of protocols for getting information quickly, establishing baselines quickly.
- The information must be easy to access, as well as understandable to many audiences.
- One of the original goals of the CEQ was to coordinate information; currently, however, they do not have the resources to do so.

Specific action items:

- Must begin to coordinate information already available between local, state, and federal entities to avoid constantly "reinventing the wheel".
- Make greater use of new information technologies, such as the web, to make data accessible to as many users as possible and, in turn, receive as much information as possible.
- Conduct an assessment of how federal agencies collect data and make it available so they can take advantage of the most productive way to gather information.

- Advocate enhancement of the CEQ program. Regulations might also be issued stating that collection of information will be handled consistently by CEQ, with cooperation from all federal agencies.

Long term possibilities:

- Develop another level of NEPA--a "strategic impact statement." This tool would assess the impacts of national and policy strategies, which structure programs and multiple projects within ecosystems, and individual projects. This way there would be no irreversible commitment of resources or commitment to a certain path without considering the full range of consequences. This plan has the possibility to slow litigation efforts by insuring that long-term project implications are being considered.

The Importance of Monitoring and Adaptive Management

Benefits:

- Requires that future concerns be taken into consideration, making monitoring and adaptive management a necessity.
- Gives agencies the authority to modify plans as new information becomes available.
- Enhances collaboration between agencies.

Needs:

- As written, states that monitoring must be done. However, monitoring is often not completed, usually due to insufficient funds, but also because there are no incentives for agencies or scientists to conduct monitoring efforts. In addition, agencies are often "punished" for discovering new information by being required to complete supplemental EIS to implement the changes.
- Ecosystems are constantly changing, making adaptive management a necessity. Currently, it may be more convenient to not know the consequences of an action because agencies will have no "burden of proof."
- Though much information is originally gathered for an EIS, lack of monitoring means no record of impacts exists for use in developing an EIS for similar projects. There may also be a problem determining which projects require long-term monitoring.

Specific action items:

- Create a reward system within agencies to complete monitoring, possibly by not requiring a supplemental EIS be done when monitoring efforts reveal that management should be altered. This could be remedied by including monitoring and adaptive management as a part of the action plan of an EIS. For example, DOD makes monitoring an implicitly stated budgetary line item that has money committed from the very beginning.
- Shift focus from the probability of harm caused by an action to a risk assessment approach. For example, while the probability of harm caused may be low, the risk may be very high.
- Take full advantage of mitigation monitoring, already a part of the EIS process, and complete retrospectives of predictive modeling.

Long term possibilities:

- Create reward system for academic scientists and agencies to undertake monitoring efforts.

Involving All Stakeholders in the NEPA Process

Benefits:

- Provides the basis for cooperation between agencies, government, and the private sector, though currently this may not be fully utilized.

Needs:

- Incentives for federal agencies to get involved in small, local projects do not exist.; therefore, the government is able to participate only in very large scale projects.
- Currently, there are many stakeholders who view the process and policy of NEPA as fundamentally flawed and are frustrated. The NEPA process also creates a dichotomy between the healthy aspects of public input and the weak parts (i.e., litigation possibilities). In order to "revitalize" NEPA, we must find a way to bring all stakeholders back into the arena.

Specific action items:

- Create incentives for agencies to engage the public.
- Get all participants together to agree on benchmarks or a set of indicators that can be used to judge progress made over a specific period of time. This could lead to community cooperation by empowering local people to take control of their futures.

Long term possibilities:

- Implementation of the "strategic planning" route explained earlier could help to coordinate needs and wants of local communities with sustainability concerns.

Conversation Participants:
Dick Carpenter, Senior Ecologist
Tom Cassidy, American Rivers
Ray Clark, CEQ
Ann Hooker, FAA
Jim McElfish, Environmental Law Institute
Jim Serfis, EPA
Mark Southerland, VERSAR, Inc.
Judy Troast, BOR

*The Sustainable Biosphere Initiative (SBI) of the Ecological Society of America, in association with the Interagency Ecosystem Management Coordinating Group (IEMCG), is hosting a series of conversations on issues surrounding ecosystem management. The SBI highlights the value of ecological research information for decision making. The IEMCG provides a coordinating mechanism for agency ecosystem management activities. Participants in the conversations are drawn from different sectors and represent a broad sweep of expertise in the areas of natural resources, land use, and governance.

Copies of this report are available from:

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