



February 29, 2008

By Hand-delivery and E-mail Attachment (PDF)

Baca National Wildlife Refuge
Draft EA Comments
US Fish & Wildlife Service
ATTN: Mike Blenden
9383 El Rancho Lane
Alamosa, CO 81101
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RE: US Fish & Wildlife Service draft Environmental Assessment on Lexam Explorations' Proposal to Drill in the Baca National Wildlife Refuge

Dear Mr. Blenden,

We wish to thank you for engaging in the NEPA process and taking the time to develop this Environmental Assessment. We respectfully submit these comments on behalf of the following organizations and the *one million people* they represent:

- Citizens for San Luis Valley Water Protection Coalition, Alamosa, CO
- San Luis Valley Ecosystem Council, Alamosa, CO
- Natural Resources Defense Council, Boulder, CO
- The Wilderness Society, Denver, CO
- Crestone Spiritual Alliance, Crestone, CO
- Shumei International, Crestone, CO
- Wild Connections, Florissant, CO
- Sheep Mountain Alliance, Telluride, CO
- Great Old Broads for Wilderness, Durango, CO
- San Juan Citizen's Alliance, Durango, CO
- Rocky Mountain Recreation Initiative, Nederland CO
- Colorado Mountain Club, Carbondale, CO

The Citizens for San Luis Valley Water Protection Coalition (WPC) is a grassroots public interest group dedicated to the protection of watersheds and aquifers, ecological and cultural resources, Sense of Place values and promoting of a sustainable future for the San Luis Valley, Colorado. The current focus of the WPC is to ensure maximum oversight on potential gas and oil development and an eventual permanent withdrawal of the mineral interests in the Baca National Wildlife Refuge.

San Luis Valley Ecosystem Council (SLVEC) is a public lands advocacy organization whose mission is to protect and restore—through research, education, and advocacy—the biological diversity, ecosystems, and natural resources of the Upper Rio Grande bioregion, balancing ecological values and human needs.

SLVEC embraces and promotes the preservation of beauty, biodiversity and the health of the San Luis Valley and upper Rio Grande bioregion. The SLVEC helps organize over 200 volunteers involved in different working groups throughout the San Luis Valley. Together, WPC and SLVEC represent over 5,000 members and associates in the San Luis Valley.

The Natural Resources Defense Council (NRDC) is a non-profit environmental organization with more than 1.2 million members and online activists, including almost 40,000 in Colorado. It is headquartered in New York and has additional offices, including one in Boulder, Colorado. NRDC uses law, science, and the support of its members and activists to protect the planet's wildlife and wild places and to ensure a safe and healthy environment for all living things. NRDC has a special interest in protecting the public lands of the Rocky Mountain region from the impacts of oil and gas development.

Summary of Concerns

These public comments seek to ensure that the US Fish and Wildlife Service (USFWS) properly adheres to the National Environmental Policy Act (NEPA) mandates that require all federal agencies to fully consider the significant and cumulative impacts of the full scope of the actions involved in and related to issuing decisions, permits or agreements on whether to allow drilling to proceed on the newly established Baca National Wildlife Refuge (NWR).

We have reviewed the *Draft Environmental Assessment of Planned Gas and Oil Exploration, Baca National Wildlife Refuge, Saguache County, Colorado, dated January 2008* (henceforth the "EA") extensively discussed it among ourselves, our members and sought the opinion of experts, government, organizations and individuals. Notwithstanding the considerable effort that USFWS has made to propose effective measures to reduce the impacts of Lexam's drilling proposal, we have reached the following general conclusions about the EA:

- The **purpose and need for the proposed project is not clearly defined** and lacks an appropriate consideration of reasonably foreseeable future actions likely to be taken by USFWS in relation to gas and oil production and build out.
- In most instances, the protective "measures" proposed in the EA are **insufficient to prevent unnecessary or unreasonable use of or degradation to the surface estate** of the Baca NWR. In essence, the EA proposes multiple measures, but no standards by which to measure their effectiveness.
- There are **no baseline data or scientific evidence to support the findings of "no" or "less than" significant impact** on the affected environment as described in the EA.
- The **cursory and partial assessment of the many unique and rare resources** do not provide USFWS with the essential information it needs to protect these resources *to the maximum extent possible*.

- The **severe capacity limitations** facing the USFWS Wildlife Refuge System that were raised in our scoping comments are not addressed in the EA. This still constitutes a major problem that needs to be addressed.
- The proposed project involves **significant and cumulative impacts** that are **not adequately addressed, or, in many cases, even acknowledged** in the EA.
- The **scope of the EA is far to limited and ignores the larger national and landscape** context of the Baca NWR and its unique regional and local setting.
- The **range of alternatives considered in the EA is much too narrow** and ignores the full range of options available to USFWS.

Based on these conclusions, we urge USFWS to take the following actions:

1. **Make a decision of a need for an EIS immediately** so as not to burden other Federal agencies, state and local government and non-governmental organizations and the public with additional review of a seriously inadequate EA.
2. **Assess the impacts from the seismic survey and develop a Reasonably Foreseeable Future Action** scenario for the projected 17,200-acre production goal outlined in Lexam's work plan.
3. **Eliminate the Proposed Action alternative** due to its failure to protect the refuge to the maximum extent possible. As proposed, this alternative would result in unacceptable degradation of the surface estate, most notably sensitive wetland and riparian habitats, endangered species, cultural resources and the unconfined and confined aquifers.
4. **Develop the No Minerals Development alternative** more fully. Include a comprehensive feasibility analysis of a federal minerals buyout, including a valuation estimate of Lexam Explorations mineral interests in the Baca National Wildlife Refuge. This alternative is an important means of achieving a final solution to the fundamental conflict of use resulting from the split-estate.
5. **Include the Suspend Drilling Until Completion of a Comprehensive Conservation Plan alternative.** Ultimately, USFWS will need to consider Lexam's gas and oil development plans within the context of the CCP process scheduled to begin within 3 years.
6. **Develop a Maximum Surface Protection alternative** that identifies alternative well locations, fully assesses resources and includes site-specific measures that minimize adverse impacts to wetlands, wildlife, endangered species, cultural resources and the confined and unconfined aquifers.

There are many significant inadequacies in the EA. A full analysis is beyond the scope of this comment letter. What follows is a general discussion of some of the

areas of insufficiency that identify, more fully, the need for an EIS and/or CCP.

I. PURPOSE AND NEED

a. Purpose of the Project: exploration or production?

In our scoping comments, we noted that USFWS had not identified a clear purpose and need for the Lexam proposal. Thus, the agency has made it difficult for the public to get a sense of why this so-called “exploration” project continues to move forward when extensive seismic data already exist.

USFWS states that the purpose of this EA is to *ensure that initial exploration of the mineral estate under the Baca National Wildlife Refuge by Lexam Explorations (U.S.A.) Inc. (Lexam) is conducted in a reasonable manner.*

USFWS allowed Lexam to conduct a 16,000-acre, 25-square mile seismic survey before initiation of the NEPA process. Citizens have observed considerable evidence of impacts from the seismic study including crushed woody plants and tire marks still visible the following spring. We urge USFWS to these assess impacts from the seismic survey as part of the NEPA analysis.

We maintain that the seismic survey was the primary exploration activity. Unless Lexam is conducting additional exploration through drilling a dry hole to observe subsurface conditions for additional seismic testing, the two wells being proposed by Lexam cannot be merely for exploration.

According to Lexam’s July 3, 2007 press release:

The Company’s 3D seismic survey for the Baca ... derived targets for natural gas, located 14,000 ft (4,265 m) below surface [which our geologists] believe is a preferred setting for reservoir development (emphasis added).

The term “exploration” is never used by Lexam to describe the proposed wells. The 16,000-acre seismic survey operation was clearly the exploratory phase that yielded essential and useful data that is now being applied to the next phase of the project – production of 17,200-acres (the original 16,000-acres plus 1,200 additional acres) identified in the seismic study.

Lexam’s work plan budget (Hoey & Geo, et al., 2006) reveals intent to complete the proposed wells:

Estimated Drilling Costs

Dry Hole Cost	\$6,500,000.00
Completion Cost	\$1,847,500.00
Sub-Total	\$8,347,500.00

USFWS avoids its NEPA obligation to consider the full scope of the proposed action by stating that *if necessary the USFWS regulation of production and associated transportation would be the subject of a separate analysis pursuant to the NEPA* (Sec 1.3) (emphasis added).

We urge USFWS to take an upfront approach by fully assessing the potential impacts of well completion and proving and develop a Reasonably Foreseeable Future Action (RFFA) scenario that includes Lexam's 17,200-acre prospective target.

Some basic pre-production concerns not addressed in the EA include:

- **Hydrocarbons.** Should hydrocarbons be encountered during the drilling process, how will they be handled? Will Lexam use the standard industry practice of natural gas flaring? How will flaring affect the Class I Air Shed values of the surrounding area? What public health and increased fire hazards will flaring introduce? How will USFWS handle these increased risks? What might be the duration of the flaring?
- **Well maintenance.** How will the wells be handled in the interim between discovery and production? Will they be capped? What technical problems and hazards might there be from keeping these wells "on hold" (possibly for several years) while the "necessary" NEPA analysis is conducted? Are there additional risks or hazards associated with "active" or "live" wells? Are maintenance crews needed?
- **Unanticipated Consequences.** What other issues, concerns and consequences might arise from having active wells on the Baca NWR, possibly for years?

b. Setting a Precedent

Permitting Lexam's drilling activities is an enormously important precedent setting action not only for the Baca NWR but also for the entire San Luis Valley where there has been no significant gas and oil industry.

c. Need for a Comprehensive Conservation Plan

In our scoping comments, we asked USFWS to analyze and disclose why this project has been 'fast-tracked' and cannot wait until completion of the Comprehensive Conservation Plan (CCP). In the EA, USFWS eliminates the Suspend Drilling Until Completion of a CCP alternative (Section 2.5.1) on the basis that it *is considered an unreasonable constraint on Lexam's rights to develop its mineral estate and unnecessary due to the limited scope of the project.*

We could just as easily argue that allowing Lexam to drill without first conducting an appropriate analysis of the surface estate is indeed an unreasonable constraint on the rights of surface owners (and USFWS obligation) to assess and protect its resources to the greatest extent possible.

Gas and oil development is common throughout Colorado and the West. It is standard procedure for Federal agencies to develop management plans prior to undertaking any major Federal action such as issuing drilling permits. Agencies routinely conduct EIS assessments prior to permitting drilling. We urge USFWS to include the Suspension of Drilling until Completion of a Comprehensive Conservation Plan alternative in the NEPA analysis.

II. CONTEXT

a. National, Regional and Local Contexts

The limited scope of the EA addresses only short-term impacts in the immediate vicinity of the project area. While direct affects are important, CEQ rules stipulate that *the significance of an action must be analyzed in several contexts such as society as a whole, the affected region, the affected interests and the locality.*

The Baca NWR is a national treasure. The EA does not address the significance of drilling in the larger context of surface owners – the American public -- for whom the Refuge was established *in perpetuity*. Over 48,500 public comment letters were received by USFWS during the 30-day scoping period. We anticipate this many or more will respond to the EA. Media attention on drilling in the Baca NWR has grown steadily since Lexam proposed to drill just a year and a half ago. The EA ignores the obvious national context of the proposed project.

Aside from the Refuge, the proposed project will have the greatest impact on the surrounding communities. The residents of the Town of Crestone, Baca Grande subdivision and Moffat will be effected 24 hours a day, 7-days a week by significant noise, light and noise pollution, public safety, socioeconomic and environmental impacts. An analysis of impacts on these small rural communities was completely absent in the EA.

USFWS failed to recognize the unique Sense of Place values of Crestone and the surrounding area. Crestone is recognized as a spiritual center of global significance. Its more than two-dozen centers are at the heart of the local economy and culture and the reason that tens of thousands of visitors come each year and many hundreds have chosen to live near the Refuge. The exceptional beauty, solitude, quietude, contemplative rural lifestyle, pristine environment, wildness and culture of sustainability are the foundation of these communities existence. Fossil fuel industrialization is inconsistent with the vision and values of the majority of the citizens of Crestone and the surrounding communities.

Lexam's mineral interest holdings in the area are extensive. Their 100,000-acre holding includes the Baca Grande subdivision, Rio Grande National Forest and significant portions of the Great Sand Dunes National Park and Preserve. Should these initial production wells be economically viable, expansion of production could lead to major cumulative impacts on the entire San Luis Valley. In addition, BLM is currently preparing dozens of mineral leases and more are projected in the near future. The potential cumulative impacts of current and future oil and gas activities – San Luis Valley wide -- must be part of the EIS analysis.

The San Luis Valley is traditionally an agricultural and tourist region. In recent years a retreat and solar/renewable energy sector has gas and oil development would lead to widespread, long-term changes that are, for the most part, not welcome by residents of the San Luis Valley. The EA fails to consider these, and other possible significant long term, regional impacts of the proposed project.

We urge USFWS to initiate an EIS that fully considers the potential significant impacts of Lexam's 17,200-acre gas and oil development scheme on the socioeconomic and Sense of Place values of these communities.

b. Affected Interests

A 2002 CEQ memorandum directs Federal agencies responsible for preparing NEPA analyses and documentation to do so *in cooperation with State and local governments and other agencies with jurisdiction by law or special expertise* (Connaughton, 2002).

The National Park Service and United States Forest Service have many overlapping concerns with USFWS in managing the 500,000-acre complex of public lands designated under the *Great Sand Dunes National Park and Preservation Act of 2000*. Despite this, USFWS apparently, did not include these agencies in the initial scoping or development process for the EA.

Aside from USFWS and personnel from ENSR, the contractor preparing this EA, there were very few outside experts consulted on this EA. Of the 4 *Persons and Agencies Contacted* (Section 5.3), there is very little evidence in the form of references, papers or reports cited, of the actual incorporation of outside expertise in the development of the EA.

The Saguache County Board of County Commissioners (BOCC) requested cooperating agency status with USFWS early in the EA process. To date, USFWS has not granted Cooperating Agency status to the BOCC.

USFWS initiated a 30-day scoping comment period during which approximately 48,500 individual letters or emails were received. Despite that the public is not yet allowed access to the refuge because there is no CCP, and the lack of opportunity to develop personal observation or baseline knowledge of the refuge, the vast majority of these comments were substantive. These comments were compiled and analyzed by the contracting agent, ENSR. Despite the very large number of comments, only five issues and concerns were identified; groundwater/aquifers, air quality, wildlife and ecosystems, cultural resources and aesthetics.

Our own analysis of these 48,500 public comments reveals **over 30 concerns that were not adequately addressed** in the EA. While not exhaustive, they include;

1. need for a definition of *unreasonable degradation*;
2. concerns that public access has been superceded by drilling;
3. need for baseline sound monitoring;
4. need for noise distance and magnitude assessments;
5. odor control measures;
6. assessment of how the proposed project contributes to global warming;
7. assessment of CO2 emissions;
8. affects on biodiversity;
9. lack of analysis for wilderness designation suitability for any lands subject to drilling
10. elk and antelope displacement and public safety concerns,
11. impacts on elk, mule deer and antelope calving habitat and recruitment;
12. assessment of habitat fragmentation;
13. increased fire risks and mitigation needs;
14. impacts on the local (retreat based) economy;
15. monitoring (inc. many requests for a community monitoring team);
16. Native American burial sites;

17. Protocols for transportation and storage of hazardous materials;
18. impacts on recreation and tourism in the Crestone area;
19. social and cultural impacts;
20. USFWS capacity and funding constraints;
21. conflicts with USFWS mission and normal operations;
22. the need for reclamation standards;
23. the need for baseline biological data;
24. wetlands protection;
25. spring and fall migrant bird populations;
26. assessment of Sense of Place values;
27. impacts on livestock and food production;
28. impacts on education,
29. the need for a cost/benefit analysis;
30. assessment of a full range of potential mitigation costs; and
31. assessment of infrastructure costs to local government.

By ignoring the concerns and expertise available from other Federal agencies, local government and a *very* concerned public, **USFWS missed an important opportunity for regional and local cooperation** that may have averted the highly contentious situation that we are all in today.

III. PUBLIC HEALTH AND SAFETY

One of the most glaringly inadequacies of the EA is its failure to address potential impacts on public health, safety and welfare. The following is a discussion of some of the concerns raised by citizens and local government that are sorely in need of EIS analysis.

a. Roadway, Traffic and Elk Displacement

The EA identifies a number of possible disruptions and negative impacts on roads and traffic, but with no reference to possible mitigation measures. Approximately one thousand residents and tens of thousands of visitors who live, work and recreate in the vicinity of the Refuge, have only one means of ingress and egress – County Road T (T-road). This road was not designed for industrial use or a high volume of traffic. There are four 90° turns on route that make traveling at high speeds on this road very dangerous. Accidents, hazardous materials spills, or transport of large equipment needed during construction of drills could easily block T-road access for hours at a time. Thus, ambulances, school buses, emergency vehicles and personnel, and people going to work will have no way in or out. This significant impact on public health and welfare was not addressed in the EA.

Groups of large game animals (most frequently elk) often cross Hwy. 17 and T-road, especially at night in the winter. Significant displacement of the estimated 4,000-strong elk herd, antelope and mule deer is expected to increase in response to drilling activities, thus likely leading to an increase in large animal crossings on T-road. Elk displacement could also impact traffic on Highway 17 along with RD T and roads within the Baca Grande subdivision. Coupled with a hundred-fold increase in large truck traffic, the increased probability for fatal (both for people and wildlife) accidents is significant and not given any consideration in the EA.

b. Drainage and Erosion Control Measures

The EA does not address drainage and erosion control measures and impacts except by referring to the Storm Water Permit required by the Colorado Department of Public Health. These issues have enormous bearing on the protection of the unconfined aquifer, wetlands, protection of sensitive species, including the endangered Rio Grande Sucker. The EA does not provide sufficient detail on drainage, storm water runoff, and erosion control measures in context to the site-specific needs of habitats, species and the challenges of the proposed project area and each well location. At the very least, Lexam's Storm Water Permit plan needs to be disclosed in an EIS in order to undergo public review.

c. Recreation & Education

Crestone is a recreation destination. Thousands of people visit the area each year to climb the Sangre de Cristo Mountains half dozen (or more) 14'ers, hike, camp, hunt, fish, ski, snowshoe, photograph, study or contemplate the mere splendor of the place. The EA fails to account for the degradation of experience that would come with the increased truck traffic, noise, and general ugliness of the extractive drilling industry.

The Crestone Community Charter School sits directly across from the Refuge. Lexam's operations in the Refuge have already impeded educational opportunities that were occurring informally with Refuge staff permission. By demanding time and attention of Refuge Management staff, drilling activities have diverted teachers, students and other heartily interested citizens away. Many residents wish to visit the national treasure that is their back yard. Drilling is a sad and unfortunate diversion precluding informal recreation or the development of formal (USFWS sanctioned) educational programs on the Refuge.

The conclusion of the EA, that there are *no recreational opportunities in the project area* ignores the impacts of the proposed project on existing and future recreational and educational opportunities.

d. Water Resources

Drilling poses a real danger to surface and ground water resources, not only in the Baca NWR, but also in the entire Closed Basin of the upper San Luis Valley. Protection of all waters is essential for protection of ecosystems, wetlands, biodiversity, migrating birds, endangered species, agriculture, public health and communities. Thus, **protection of the confined and unconfined aquifers demands the fullest, most complete care** including an EIS analysis that requires stringent protection measures with the strictest standards and monitoring possible.

As currently proposed, USFWS will be permitting drilling in highly sensitive wetland and riparian areas where **severe impacts to surface waters and the unconfined aquifer cannot be avoided**. The EA acknowledges potential impacts from sedimentation, erosion, and contamination from hazardous chemical spills including diesel, gasoline, drilling mud additives and cement. It concludes that the *magnitude of impacts depends on slope aspect and gradient, soil type, duration and timing of activities and success or failure of reclamation and protection measures*. The EA fails to describe how these conditions and parameters

relate to the project area, the specific well locations, or what standards would be applied to assess the *success or failure of* [these] *measures*.

Saguache County passed a “Significant Recharge Area” ordinance through its 1041 Local Land Use Regulations in 1994. This was highlighted in our scoping comments that explained the “permeability study” that was conducted which determined a “significantly high” recharge area. These proposed drilling sites are taking place within the alluvial fan in this recharge area. The rate or direction of movement of water in the “confined aquifer system” has been well established in the Rules and Regulations Case 2004 CW-24, decision November 9, 2006. American Water Development., Inc. v City of Alamosa, 874 P.2d 352, 367 (Colo. 1994) (AWDI):

“The upper 6000 feet of fill below the valley surface consists of unconsolidated clay, silt, sand, and gravel, and interbedded lava flows... Some of the underground water is in an unconfined aquifer system at shallow depths. Beneath the unconfined aquifer are relatively impermeable beds of clay and basalt and beneath these confining layers are substantial quantities of water which comprise the confined aquifer. The confining clay layer generally does not exist around the valley’s perimeter, and the confined aquifer system is recharged from surface flow to the underground water system at the edges of the valley. Because the recharge areas are higher in elevation than the floor of the valley, the confined aquifer is under artisan pressure, resulting in the free flow of water from some artesian wells and springs at natural breaks in the confining layer. In some places, where the confining layer is less thick and more transmissive, water from the confined aquifer will leak upward through the confining clay layers into the unconfined aquifer. The unconfined aquifer is directly connected with the surface streams in some places. To varying degrees, the surface streams, the unconfined aquifer, and the confined aquifer are hydraulically connected.”

According to analysis based on a set of Material Safety Data Sheets (MSDSs) submitted to Saguache County for products proposed by LEXAM Corporation and reported by Dr. Theo Colborn, PhD in her *Analysis of the possible adverse effects of chemicals proposed for use in drilling natural gas wells in the Baca Wildlife Refuge, Crestone Colorado*:

- Twelve of the chemicals are water soluble. The most common categories that these chemicals can harm are (1) eyes, skin, and other sensory organs; (2) respiratory; (3) gastrointestinal tract and liver; and (4) ecological. Ecological can include invertebrates, fish, amphibians, and birds.
- A foamer and solvent, 2 butoxyethanol (2-BE) is listed as 35% of one of the products. 2-BE is highly soluble (miscible) in water, colorless, and odorless at low concentrations, and evaporates at room temperature. It has a number of unusual health impacts that would baffle physicians and veterinarians and also causes several kinds of rare cancers. If it were to penetrate a drinking water source, exposure could be through ingestion, inhalation, and the skin.
- The majority of the chemicals on this list have never been tested at realistic, environmentally relevant, chronic exposure levels, or for delayed effects

that may not be expressed until long after exposure, or even in the next generation through parental transfer. Neither have adequate ecological studies been done for their effects on terrestrial wildlife or birds, fish, and invertebrates. It is reasonable to assume that the health endpoints listed above could very well be seen in wildlife, domestic animals, and pets.”

- The products labeled as biocides are among the most lethal on the list, and with good reason. Bacterial activity in well casings, pipes and joints can be highly corrosive, costly, and dangerous. Bacteria can also alter the chemical structure of polymers and make them useless. If biocides were to return to the surface either through deliberate retrieval processes or accidentally, they could pose a significant danger to workers and those living near the well and evaporation ponds. They can also sterilize the soil and inhibit normal microorganism and plant growth for many years.

Iron bacteria is well documented in casings belonging to the Closed Basin Project, located just south of the refuge and has been a constant source of difficulty in managing the CB project. Many of their shallow wells have not functioned properly for years and the Iron Bacteria has hindered the projects ability to pump water efficiently or effectively, if at all.

In the EA, (Section 4.4), there is no mention of the significant recharge area being impacted by the proposed wells, nor the hydrologic connectivity of the surface and groundwater systems. The EA states “After drilling, the use of cement to case the borehole would seal porous zones from further infiltration of drilling fluids. If the well is plugged and abandoned, COGCC rules require that cement plugs be placed over porous and permeable zones to protect aquifers.” According to the court testimony above, those permeable layers (unconsolidated clay) go as deep as 6,000 ft. What will be protecting the water quality of those permeable confined aquifer zones between 3,000-6,000 ft. since the casing will only be going to 3,000 ft.?

The EA goes on to say *Over a period of time the filtrate would disperse into the formation by movement of groundwater. The impact of the mud filtrate is expected to be negligible. Impacts to water quality would be less than significant because of the protection measures of the USFWS and compliance with permit conditions and rules of the COGCC.*

The “protection measures” stated in this EA regarding water quality are incomplete. The *transmissive* character of the aquifer systems is not addressed at all, nor the potential for long term groundwater contamination of chemicals listed above due to the communications between the aquifers systems.

Iron Bacteria (IB) documented in the shallow aquifer system operated by the Closed Basin Project just below the Refuge has not been acknowledged as a complicating factor and potential hazard in the drilling of these wells. How would iron bacteria impact the plugs and casings in the shallow aquifer over a period of time? How would IB impact a production well? Could IB be released and dispersed into the shallow aquifer due to the *transmissive* character of that recharge area? What might be the ecological cost?

The EA references COGCC and CDPHE rules concerning erosion control and

sedimentation but they do not say how these rules will be applied to the many unique challenges of operating in sensitive wetland and riparian habitats.

The EA proposes eleven protective measures to reduce impacts to surface and ground waters to *less than significant*. These measures include baseline water and soil sampling, installation of monitoring wells, 3000' casing, use of a closed-loop system and off-site disposal of cuttings. These protective measures are recognized as best management practices and are very important. Nevertheless, the vitally important need to protect surface and groundwater resources and the sensitive nature of the proposed drilling locations render these **protective measures too vague and nonspecific to be useful**. Consequently, the EA does not provide adequate assurances to justify a conclusion of *less than significant* impacts to the vital waters of the refuge and the San Luis Valley.

Concerns related to protection of the unconfined and confined aquifer clearly deserves a more complete analysis. We urge USFWS to initiate an EIS and/or CCP process that gives full consideration to the complexities and specific challenges of drilling in the specific context of the proposed project area and each proposed well location.

We urge USFWS to give serious consideration to the addition of a **Maximum Resource Protection Alternative**. Such an alternative would include, among other measures:

- The relocation of Wells No. 5 one-half to three-quarters of a mile to the north and Well No. 7, 1-2 miles to the west in order to remove all drilling activities from sensitive wetland and riparian habitats, reduce the need for new road construction and protect vital and vulnerable surface and ground water resources *to the maximum extent possible*.
- Disclosure of a storm-water runoff management plan that includes site-specific measures, standards and monitoring protocols for each proposed well.
- Application of *no diesel and no chemical* drilling practices. These practices are used routinely in offshore drilling (www.earthworksaction.org/FracingDetails.cfm). Given that aquifers are at or very near the surface throughout the refuge, this is the only environmentally responsible approach to drilling in the Baca NWR.

e. Water Quality Monitoring

Section 5.4.2 states that *water quality monitoring will occur once 1-2 years after drilling operation cease, unless spills were documented during operation*. This is not adequate water monitoring to determine if accumulative impacts have occurred.

The documents referenced above do very little to address site specific reclamation issues. These are the documents that the Draft EA is relying on for reclamation and mitigation purposes. They are wholly inadequate.

f. Water Quantity

The EA proposes that USFWS provide 15 acre-feet of water per year from sources that are exempt from inclusion in the NEPA analysis. It concludes that the use of nearly 5 million gallons of Refuge water will have *no significant impact* by citing a nonexistent section that requires Lexam to *offset the depletion of water it uses*. The EA **ignores potential impacts on other water users as well as Federal, state and county water protection and use laws**, rules, ordinances or how these laws might bear on Lexam's proposal for water use.

The EA contains no data, scientific or otherwise, to support the conclusion of no significant impact. These are obvious issues that deserve analysis through an EIS and/or CCP process.

g. Wildfire Hazards

The introduction of people and machines into the Refuge environment will increase the potential for wildfires significantly. Hydrocarbons are highly volatile, toxic and hazardous. If Lexam encounters hydrocarbons in the drilling process, they will likely be brought to the surface leading to a host of potential impacts and mitigation needs. All of these variables need to be addressed in a full EIS analysis.

h. Geological Hazards, Minerals and Soils

The EA refers to a number of potential negative impacts to soils including erosion and potential soil contamination. In both cases, protection measures are referred to but not disclosed. The COGCC rules, Storm Water Permit Plan and Spill Prevention, Control and Countermeasure Plan needs to be included in an EIS analysis in order to determine if these measures will *further reduce the minimal impacts* concluded in the EA.

Hydraulic fracturing will most likely be used in Lexam's drilling operation although it is not yet known at what stage. This technique can lead to the contamination of aquifers, fissures and unexpected fault behavior. This and other geohazards (see below) need to be fully disclosed and analyzed. Hydrologic best practices, including the use of non-toxic "delivery systems" are most appropriate to drilling in the refuge. According to EPA these water-based products are preferable (EPA, 2002).

There is no data to support the conclusion of the EA that impacts on geology and other mineral resources *are not expected*. In particular, unintended consequences that could occur from drilling 14,000' deep in a poorly understood geological environment (Harmon, 2004), need to be fully disclosed including risk management scenarios for the following industry related and geological hazards:

- Induced earthquakes
- Blowouts
- Hydrothermal/volcanic intrusion breach
- Subsidence
- Mudflows
- Fracing irregularities

i. Air Quality

The discussion of the air quality in the project area is incomplete and ignores the unique context of the refuge. The outstanding quality of our Class I Air Shed is one of the areas most valuable resources. Yet it is entirely ignored in the EA. Potential impacts on air quality resulting from flaring, should Lexam encounter even small amounts of hydrocarbons, are not addressed at all.

The San Luis Valley has long been recognized for its exceptional solar energy potential. Many locals use solar collectors, and the industry has targeted the San Luis Valley for major commercial solar-generated electricity installations. Increased particulates very rapidly decrease the efficiency and effectiveness of solar powered facilities. While increased dust emissions from the project are anticipated, the highly relevant and very significant economic impact of those emissions was not noted or assessed in the EA.

Lastly, exempting the operation from assessment of vehicle and equipment emissions because a drilling rig is considered non-stationery is unacceptable in the context of the refuge. If USFWS is to protect the refuge (and surrounding) resources, it must use its the authority to set standards above and beyond those applied to nonfederal lands. Diesel exhaust, formaldehyde, and other volatile organic compounds emitted from drilling operations will certainly impose significant impacts upon air quality. These impacts need to be assessed, and fully mitigated through the EIS process.

j. Hazardous Waste Management

Hazardous waste management concerns including handling, storage, transport, spill containment and cleanup, etc. need to be considered within the context of an EIS. The no chemical drilling option would reduce the risk of air, water and soil contamination considerably, however produced water and drill-cutting issues remain to be addressed.

IV. VEGETATION AND WILDLIFE

Vegetation and plant communities, special status plant species, invasive and noxious weeds, wildlife and fisheries, and special status species listed in the state of Colorado and by the Colorado Natural Heritage Program (CNHP) are considered in this section. Federally listed species are considered in Section V below.

a. Vegetation and Plant Communities

Sensitive Plant Species

Slender Spider Flower

The slender spider flower (*Cleome multicaulis*) is a wetland plant and occurs almost exclusively in the San Luis Valley, Colorado (Colorado Native Plant Society, 1997). *C. multicaulis* is an annual that's restricted to saline or alkaline soils at the edges of wetlands or moist meadows, especially where the water table nears the surface. Its population size and distribution fluctuates considerably from year-to-year. According to the EA, *sizable populations* of this globally rare, category 2 species *are known to occur in the planned project area*.

USFWS proposes to mitigate impacts on *C. multicaulis* by *avoiding as much as possible areas that may contain sensitive plants [in] laying out the location of roads, the avoidance of areas containing the slender spider flower was conducted under the direction of the USFWS. Based on avoidance of the flower as determined during the growing season, impacts are expected to be less than significant* (emphasis added).

Avoidance is an effective approach to preventing adverse impacts to *C. multicaulis*. However, there are two problems with this proposed mitigation measure;

- 1) There is **no data** on the distribution or abundance of *C. multicaulis* in the project area relative to the proposed project activities **to inform avoidance**.
- 2) As an annual, *C. multicaulis* **grows from seeds each year** and is likely to vary in its distribution and abundance from year-to-year. Thus, it is **difficult to predict in advance** where, or in what numbers the plant might occur.

Given the above, the most effective means of preventing adverse affects on *C. multicaulis* is to **avoid its known habitat** (saline or alkaline soils at the edges of wetlands or moist meadows, especially where the water table nears the surface).

Pre-project design surveys are clearly needed to **identify the appropriate habitat** to be avoided before project implementation. We urge USFWS to include pre-project design surveys in the Maximum Surface Protection alternative considered in an EIS.

Sensitive plant species not addressed in the EA

Other sensitive plants occur within the Closed Basin and adjacent Great Sand Dunes National Park and have the potential to occur in similar habitats within the project area (see Figure 1). **Field surveys are needed** to determine the occurrence of these sensitive plants in the project area.

Species Name	Common Name	Global Rank	State Rank
<i>Astragalus bodinii</i>	Bodin's milkvetch	G4	S2
<i>Epipactis gigantea</i>	helleborine	G4	S2
<i>Platanthera sparsiflora</i> var. <i>ensifolia</i>	canyon bog-orchid	G4G5T3	S2
<i>Sisyrinchium demissum</i>	blue-eyed grass	G5	S2
<i>Sisyrinchium pallidum</i>	pale blue-eyed grass	G3	S2
<i>Astragalus cerussatus</i>	milkvetch	G2	S2
<i>Cryptantha cinerea pustulosa</i>	James catseye	G5T?	S1
<i>Cryptantha weberi</i>	Weber's catseye	G2	S2
<i>Draba fladnizensis</i>	Arctic draba	G4	S2S3
<i>Draba grayana</i>	Gray's peak whitlow-grass	G2	S2
<i>Draba smithii</i>	Smith whitlow-grass	G2	S2
<i>Eriophorum altaicum</i> var. <i>neogaeum</i>	Altai cottongrass	G4T?	S2
<i>Neoparrya lithophila</i>	rock-loving neoparrya	G2	S2
<i>Stellaria irrigua</i>	Altai chickweed	G4?	S2

<i>Woodsia neomexicana</i>	New Mexican cliff fern	G4?	S2
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Figure 1. Sensitive plants of the Closed Basin (**species in bold expected to occur in the project area**) (CNHP, 1998).

b. Invasive and Noxious Weeds

Invasive species are a major threat to the environment because they can change entire habitats, place ecosystems at risk, crowd out or replace native species and damage human enterprise such as ranching, farming and fisheries costing millions of dollars. Compared to other threats to biodiversity, invasive introduced species rank second only to the destruction of habitats (Simberloff, 2007).

Management of invasive and noxious weeds has been a major challenge for the Refuge and considerable time, effort and resources have been allocated to managing this serious problem (Garcia, 2007). The problem is acknowledged in the EA as referenced to the 1999 Executive Order #13112 directing Federal agencies on invasive species.

Surface disturbance and introduction of invasive species into a new environment are the primary driving forces in the spread of invasive plants. Minimizing ground disturbances and keeping potentially damaging invaders out is the most cost-effective way to deal with introduced species.

The proposed project involves a high level of direct and surface disturbance from construction and use of roads, well pads, etc. It also offers ample opportunity for new invasive species and the reintroduction of already present species to hitch a ride on a constant stream of heavy equipment, trucks, personnel vehicles and people.

The EA concludes that *the introduction and establishment of invasive and noxious species would be minimized by decontamination of vehicles based on USFWS protection measures, and any additional requirements required by USFWS. Impacts due to invasive and noxious weeds are expected to be less than significant (Section 4.5.2.2) (emphasis added).*

Mitigation measures #1 (decontamination of trucks and equipment), #18 (materials authorized), and #28 (restoration) are proposed to prevent the introduction, reintroduction and spread of invasive species in the Refuge. While these mitigation measures are important preventatives, there are two notable limitations to their effective implementation:

- 1) The EA makes **no mention of what invasive species are currently present** in the project area, their distribution, abundance or ecology. With no baseline data, how can USFWS monitor the introduction or spread of invasive species?
- 2) As noted in our scoping comments, restraints in funding and personnel means that Refuges **do not have the capacity** to manage their current obligations much less assume the additional burden of monitoring vehicle inspections and decontamination, etc. as required by these measures.

Adequate **funding, trained personnel and monitoring protocols must be**

identified if the proposed mitigation measures are to be effective. There are no provisions included in the EA to address these **critical capacity concerns**.

c. Wildlife & Fisheries

Hundreds of species and millions of individual migratory and resident birds, rodents, mammals, reptiles, amphibians, invertebrates (including insects and aquatic organisms) thrive within the confines of the Refuge. The nearby Great Sand Dunes National Park is known to support at least 29 species of mammals, 110 species of birds, 6 species of reptiles, 4 amphibian species and numerous invertebrates including a number of endemics found nowhere else in the world (NPS, 2006). While not all of the life zones are shared with the Park, the Baca NWR has the potential to support many of these species and possible some species that do not occur in the Park.

Thus, it is no surprise that a diverse assemblage of wildlife is expected to occur within the project area. Wildlife issues identified in the EA are loss or alteration of habitat, increased habitat fragmentation, displacement, direct loss and impacts associated with crossings at Crestone and Willow creeks (Section 4.6.1). The EA acknowledges that impacts on wildlife and its habitat depends on *factors such as the sensitivity of the species, seasonal use patterns, type and timing of project activity, and physical parameters* (e.g., topography, cover, forage and climate) (Section 4.6.1).

However, **no specific data is provided** on any of these parameters for any of the wildlife species of concern or project activities considered by the EA. Nevertheless, the conclusion that *impacts to wildlife and fisheries resources as a result of the planned project would be minimized* is made. Without this data, a credible determination of impacts or **evaluation of the protective measures is simply not possible**.

There is no evidence in the EA that systematic surveys, literature reviews or substantive consultation were conducted. The Colorado Division of Wildlife (CDOW), Colorado Natural Heritage Program (CNHP) and USFWS are listed as having been consulted (Section 4.6.1) but there is no reference as to the content or outcome of these consultations or how they were applied to assess wildlife in the project area. Such **surveys and additional studies are essential** for USFWS to know with any certainty which of these species occur in the project area or how to manage the proposed project in order to minimize impacts.

d. Elk, Pronghorn and Mule deer

SLV is home to over 4,000 resident and migrant elk and numerous mule deer and pronghorn. Recent studies indicate that the elk herd is in decline. Recruitment of newborns is reduced for unknown reasons (Schoenecker et al., 2005). The EA **acknowledges displacement and habitat fragmentation issues** and that these impacts will, indeed affect these large game species however, it **fails to provide analysis** of these effects or propose mitigation to alleviate these affects. The potential impacts of drilling activities are planned for the winter months when these species are most vulnerable to displacement from their critical winter habitat within the project area. Displacement affects have many implications including increasing the risk road fatalities, and human-wildlife conflicts that need to be

assessed in the context of an EIS or CCP.

e. Colorado Special Status Species

Rio Grande sucker

The Rio Grande Sucker (RGS) (*Catostomus plebeius*), is a small (0.4 to 0.9 inches) algae-eating fish that was once found throughout the Rio Grande Basin. By the mid 1990's the distribution of Rio Grande sucker had been severely reduced to only one Colorado location in Hot Creek, Conejos County. This species has a Natural Heritage Program global rank of G3G4 (globally vulnerable but apparently secure), but a state rank of S1 (critically imperiled) in Colorado (Rees & Miller, 2005). The Colorado Division of Wildlife (CDOW) considers the Rio Grande sucker a state endangered species (Langlois & Alves, 1994).

In 2005, a new and genetically unique population was found by accident in lower Crestone Creek in the Baca NWR (www.slvdweller.com/index.php?/archives/2006/01/06/New-Population-of-Rio-Grande-Sucker-Found.xhtml), effectively doubled the number of naturally reproducing populations of the species in the state of Colorado from one to two.

The Rio Grande Sucker is **very vulnerable to changes in water quality**, most notably impacts from increased siltation, deposition of fine sediments or changes in water chemistry. The amount of sand/silt substrate was inversely related to fish density in each habitat unit in Hot Creek (Swift- Miller et al. 1999b). Similarly, Rio Grande sucker condition was negatively related to the proportion of fine sediment in streams that were surveyed in Colorado and New Mexico (Swift-Miller et al. 1999a).

This small fish species disappeared from much of its range before it was well studied, thus **very little is known about its habitat needs**, seasonal and life stage habitat requirements, reproduction and genetic diversity. The consequences of loss of genetic heterogeneity and diversity for the long-term survival of the species is not well understood.

The **genetically unique Crestone Creek population offers new hope for the survival of the species** throughout the Rio Grande Basin. Yet this small, isolated population is highly vulnerable to impacts from catastrophic events. **A single catastrophic event such as a small diesel spill or sudden sedimentation load from a storm could extirpate the entire population.**

As proposed, the **major access road to the well sites goes right over the Rio Grande Sucker population** in lower Crestone Creek. The EA does not address this conflict but offers a general conclusion that *USFWS protective measures would minimize impacts to special status species* (Section 4.6.2.6.). The proposed measures are presented in a list with **no reference to what measures would be applied to which species under what conditions**. There is no reference to the distribution, habitat needs, or threats to the Rio Grande Sucker in fact **no data whatsoever is presented in the EA regarding this vulnerable species**.

We urge USFWS to undertake a full EIS evaluation of this important and extremely vulnerable species before allowing the drilling to go forward or proposing

mitigation measures. Such **studies should, at the very least**, include:

- Population surveys,
- General attributes of life history and ecology,
- Identification of specific threats as they relate to drilling (esp. sedimentation, erosion, chemical spills, and storm water runoff planning,
- Habitat requirements and associations,

Monitoring should be detailed and continuous. Data collected should include, water temperature, dissolved oxygen, dissolved solids (pollutants), discharge, depth, turbidity, substrate, and deposition of fine sediments and changes in water chemistry. This information will provide baseline data that would inform design of an early warning system to alert refuge managers to any problems before they lead catastrophic extinction.

Willow and Spanish creeks contain suitable habitat for the Rio Grande sucker. These areas need to be surveyed in advance of approval of Well No. 5 and No. 7 permits. The MRPA is important to the survival of this critical population considered by CDOW to be essential to the survival of the species throughout the Rio Grande Basin (Rees & Miller, 2005).

Other special Status Species

Field surveys conducted in the appropriate seasons and additional consultations with experts are needed in order to properly determine impacts on the 17 species of concern (including federally listed endangered species) identified in the EA that potentially occur in the project area. The proposed mitigation measures are very general, poorly supported and in the case of aquatic species (including rare and endangered fishes) contradictory.

A number of special status species have the potential to occur in the project area (see Table 4). At minimum, surveys need to be conducted for all of the species in Table 4 to determine their absence or presence, distribution, abundance and habitat associations before impacts can be adequately assessed and affective mitigation measures identified. As such, **the EA lacks this specific data** to make a reasonable determination about impacts or how to avoid impacts on these special status species. Table 4 lists includes the special status species that USFWS included in the EA plus those considered by CNHP to be in need of special protection. The final addition to Table 4 includes the Gunnison’s prairie dog, just listed as a candidate species for the Federal Endangered Species list. This species is considered more fully below.

Table 4. Comparison List of CNHP Species of Concern & Draft EA for the Baca National Wildlife Refuge (CNHP, 1998)

COMMON NAME	SCIENTIFIC NAME	CDW Status	Global/ State Rank	Draft EA
AMPHIBIANS & REPTILES				
Northern	<i>Rana pipiens</i>	SC	G5/S3	High: suitable habitat within project area (wet meadows, marshes, ponds, streams, irrigation ditches, breeding April 15-Aug. 15)

Leopard Frog				“drastically declining” last 50 years.
Tiger salamander	<i>Ambystoma tigrinum</i>		G5/S5	High: documented east of project area (Sovell)
Chorus frog	<i>Pseudacris triseriata</i>		G5/S5	High: mating calls documented east of project area (Sovell)
BIRDS				
Bald eagle	<i>Haliaeetus leucocephalus</i>	ST		Mod: migrating and wintering individuals, most use Crestone Creek ne of project area
Golden eagle	<i>Aquila chrysaetos</i>		G5/S3S4B	
Ferruginous hawk	<i>Buteo regalis</i>	SC		High: documented in vicinity of project area
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	SC		Mod: documented foraging around wetland and marshes within project area. No known nesting habitat
Greater sandhill crane	<i>Grus canadensis tabida</i>	SC		High: large numbers migrate through refuge in fall and spring
Western snowy plover	<i>Charadrius alexandrinus</i>	SC		High: documented 15 miles south of project area near San Luis Lake
Mountain plover	<i>Charadrius montanus</i>	SC		High: very few records for SLV, suitable habitat within project area, documented east of project area (Sovell)
Long-billed curlew	<i>Numenius americanus</i>	SC		Mod: suitable nesting habitat in project area, documented migrating through project area
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	FE, SE		Low: suitable habitat occurs in project area, documented Rio Grande & Higel State Wildlife Areas 25 miles southwest
Western yellow-bellied cuckoo	<i>Coccyzus americanus occidentalis</i>	FC/SC	G5T3Q/SN A	Low: suitable habitat, documented in old-growth cottonwood 35 miles south of project area
Wilson’s phalarope	<i>Phalaropus tricolor</i>		G5/S4B, SZN	High: documented east of the project area (Sovell)
Sage sparrow	<i>Amphispiza belli</i>		G5/S3B	
Snowy egret	<i>Egretta thula</i>		G5/S2B	
Black-necked stilt	<i>Himantopus mexicanus</i>		G5/S3B	
White-faced ibis	<i>Plegadis chibi</i>		G5/S2	
Burrowing owl	<i>Athene cunicularia</i>	ST		High: documented nesting in several locations in vicinity of project area
Short-eared owl	<i>Asio flammeus</i>		G5/S3B	
BETLES & CRICKETS				
Giant flower beetle	<i>Amblyderus tripleborni</i>		G1/S1	
Ant-like flower beetle	<i>Amblyderus werneri</i>		G1/S1	
Great Sand Dunes tiger beetle	<i>Cicindela theatina</i>		G1/S1	
Circus beetle	<i>Eleodes hirtipennis</i>		G1/S1	
Histerid beetle	<i>Hypocaccus sp. (undescribed species)</i>		G1/S1	
Giant sand treader camel cricket	<i>Daibinibaenetes giganteus</i>		G4/S1	
BUTTERFLIES				
Colorado Blue	<i>Euphilotes rita</i>		G3/G4/T2/	

	<i>coloradensis</i>		T3/S2	
Rhesus skipper	<i>Polites rhesus</i>		G4/S2/S3	
San Luis sandhill skipper	<i>Polites sabuleti ministigma</i>		G5/T3/S3	
Sandhill fritillary	<i>Boloria selene sabulicollis</i>		G5T2/S1/S2	
Simius roasside skipper	<i>Amblyscirtes simius</i>		G4/S3	
DRAGONFLIES AND DAMSELFLIES				
Hoary skimmer	<i>Libellula nodisticta</i>		G4/S1	
Sand Dunes Robber Fly	<i>Proctacanthus</i> sp. (undescribed species)		G1/S1	
FISH				
Rio Grande chub	<i>Gila pandora</i>	SC	G3/S1	High: documented near project area in Crestone Creek (CDOW, 2005) and Weisman Lake 1.5 miles north
Rio Grand sucker	<i>Catostomus plebeius</i>	SE	G3/G4S	High: documented near project area in Crestone Creek by CDOW in 2005
Rio Grande cutthroat trout	<i>Oncorhynchus clarki virginalis</i>	SC		Mod: known to occur in Saguache Creek drainage west of project area and San Luis Creek southwest of project area
MAMMALS				
Plains pocket mouse subspecies	<i>Perognathus flavescens relictus</i>		G5T/2S2	
Silky pocket mouse subspecies	<i>Perognathus flavus sanluisi</i>		G5T/3S3	
Thirteen-lined ground squirrel subspecies	<i>Spermophilus tridecemlineatus blanca</i>		G5T/3S3	
Brazilian free-tailed bat	<i>Tadarida brasiliensis</i>		G5/S1	High: foraging individuals documented east of the project area (Sovell)
Northern pocket gopher subspecies	<i>Thomomys talpoides agrestis</i>	SC	G5T3/S3	High: documented 2 miles from project area (Sovell)
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	SC		Mod: Suitable habitat w/in project area
Gunnison's Prairie Dog	<i>Cynomys gunnisoni</i>	FC		High: (Not assessed in the EA), montane populations recently listed as a Federal ESA candidate species, Gunnison's prairie dog colonies are confirmed within the project area. SECTION 7 CONSULTATION REQUIRED
Black-footed ferret	<i>Mustela nigripes</i>	FE, SE		Low: suitable habitat, Gunnison's prairie dog colonies within project area, NW CO nearest known habitat

V. ENDANGERED SPECIES

The EA does not contain evidence in the way of referenced field surveys, scientific analysis, consultations or reports that adequate surveys have been conducted for federally listed rare, threatened or endangered species as required under the **Endangered Species Act**. The USFWS July 2007 *Letter of Concurrence with the Determination of No Effect* for all federally listed species is also not supported by

scientific evidence, consultation letters or any documentation whatsoever. Endangered Species Act, Section 7 compliance is required where Federally Endangered species may occur. Suitable habitat exists for the following Federally listed endangered species:

- Southwestern Willow Flycatcher
- Black-footed Ferret

Gunnison's Prairie Dog (*Cynomys gunnisoni*)

In February 5, 2008, the USFWS added Gunnison's prairie dogs to the list of candidates for Endangered Species Act protection including south-central Colorado and north-central New Mexico (the northeastern portion of the range). The species was assigned a listing priority number (LPN) of 2, because threats have a *high magnitude, and are imminent* (USFWS, 2008). Gunnison's prairie dog colonies occur within the project area (Section 3-32 and Table 3-6).

Gunnison's prairie dogs are associated with intermountain valleys, benches, and plateaus that offer prairie-like topography and vegetation such as that in the San Luis Valley. (Knowles, 2002).

Gunnison's prairie dog is known to occur in the Baca NWR, in the project area (See Table 3-6). Therefore, surveys must be conducted and an ESA, Section 7 consultation completed. The presence of this highly sensitive species in the project area is yet another indication of the need for an EIS or CCP.

VI. UNIQUE GEOGRAPHIC CHARACTERISTICS

The proposed project area contains important National Inventory Wetlands, Potential Conservation Areas (PCA's) as defined by the Colorado Natural Heritage Program and numerous cultural sites eligible for the National Registry. The Great Sand Dunes National Park and the nations largest and most diverse concentration of spiritual retreat centers are both located close to the proposed project area. The highly **unique geographic characteristics** and Sense of Place values of the area deserve assessment under a full EIS.

Wetlands

We request that USFWS include a wetlands delineation map in the NEPA analysis.

VII. CULTURAL RESOURCES

The Baca National Wildlife Refuge is part of the Sangre de Cristo National Heritage Area expected to be designated by Congress in the very near future. According to Smithsonian scientists, *thousands of archeological sites and millions of artifacts* including *human graves, potentially spanning more than 400 generations* are expected to occur *subsurface* in the Baca National Wildlife Refuge, including the project area (Jodry, 2007). Many of these may be eligible as **National Register of Historic Places** under the National Historic Preservation Act (NHPA) of 1966. The Draft EA determines that *the proposed action is not considered an undertaking as defined by NHPA, and therefore is not subject to [section 106] review*. For the same reasons that this major federal action requires NEPA compliance, it also constitutes an undertaking that requires Section 106 compliance. The EA does not

offer any explanation of why the proposed project that is undergoing NEPA analysis, does not constitute an undertaking (REF).

Smithsonian archeologists Jodry and Stanford, the Hopi Tribe and the Colorado Office of Archeology and Historic Preservation have all expressed concerns about how the USFWS is handling Section 106 compliance which indicates a clear need for a more thorough analysis in the context of an EIS or CCP.

VIII. FEDERAL, STATE & COUNTY LAWS

The EA includes an incomplete list of **Federal, State and local Statutes, Regulations and Ordinances**. With the exception of Excepted Mineral Rights, the EA does not include an analysis of how the proposed project relates to, including potential violations, these laws, regulations and statutes. The National Environmental Policy Act (NEPA), National Historic Preservation Act (NHPA), Archeological Resources Protection Act (ARPA), Migratory Bird Treaty Act (MGTA), Migratory Bird Conservation Act (MBCA), Endangered Species Act (ESA), Clean Water Act, Clean Air Act, American Grave Protection and Repatriation Act, Resource Conservation Recovery Act, Occupational Health and Safety Administration and Colorado Department of Public Health and Environment, and Department of Transportation regulations are some, but not all of the statutes that need to be addressed fully in an EIS.

IX. RECLAMATION

In reviewing the U.S. Fish and Wildlife Service Manual, 612 FW 2, for Oil and Gas Abandonment and Rehabilitation, the protocol stays very general:

- 1) Dry wells plugged with cement, casings sometimes filled with heavy mud,
- 2) After plugging, all above ground support facilities must be removed from the site,
- 3) Restoration stipulations will be incorporated into any permits issued, supplemented by detailed information on rehabilitation procedures in the Operations Plan,
- 4) All hazardous materials removed from site,
- 5) Restore access roads and sites to original surface contours and revegetate with appropriate native flora,
- 6) Written record of activities, records of conversations, correspondence, photos, evaluations, and test results,
- 7) Performance Bond,

The COGCC Conditions of Approval reclamation process stays general and is not site specific at all:

Lexam will insure that all drilling and completion operations will be supervised by a WellCAP IADC certified supervisor. All blow prevention equipment shall be rated for 5000 psi and will be installed and tested in accordance with U.S. Bureau of Land Management Onshore Order #1.

The agreement between Saguache County and Lexam contains some of the most specific information regarding this site thus far:

In order to minimize the cost and effort involved in disposing of cuttings from the drill sites and to minimize the impact that the drilling activities may have on Saguache County, Lexam further agrees that it will voluntarily test the “cuttings” which arise from the drilling of any exploration activities within the County of Saguache. Such testing shall be limited to those cuttings that visually exhibit substances other than dirt and rocks and for which Lexam proposes to permanently dispose in the County. These tests will be in addition to, or concurrent with, any other testing that may be required by Federal or State authority. The purpose of this testing is to determine if the cuttings can be safely used as website cover and/or road based materials, as well as to assist in determining if any special precautions are required for the permanent disposal of the cuttings.

The testing is to include:

- Total petroleum hydrocarbons (TPH),
- Sodium Absorption Ratio (SAR),
- Heavy Metal concentrations,
- pH Level, and
- Conductivity

The Negotiated Operations Plan between Lexam and U.S. Fish and Wildlife Service states that:

Full consideration will be given to avoid impacts to habitat etc. Construction of roads and pads will occur in a way that will facilitate their complete removal and reclamation once Lexam activities have ceased at these sites. This includes separating and stockpiling topsoil on site to be replaced during reclamation. All disturbed areas will be reclaimed per Service and COGCC permit requirements.

The NOP does not refer to any Saguache County agreement here, another indicator of no cooperating agency status.

Water Quality Monitoring

Section 5.4.2 states that *water quality monitoring will occur once 1-2 years after drilling operation cease, unless spills were documented during operation.* This is not adequate water monitoring to determine if accumulative impacts have occurred.

The documents referenced above do very little to address site specific reclamation issues. These are the documents that the Draft EA is relying on for reclamation and mitigation purposes. They are wholly inadequate.

X. MITIGATION MEASURES WERE NOT ANALYZED

Although the USFWS relies heavily on proposed mitigation measures, the EA does not actually analyze whether - and how - these protective measures will be effective in mitigating the impacts outlined in the EA. The approach taken in the EA is legally indefensible, as noted by numerous federal courts. See *National Audubon Society v. Hoffman*, 132 F.3d 7, 17 (2d Cir. 1997)(*Mitigation measures must be supported by substantial evidence in order to avoid creating a temptation*

for federal agencies to rely on mitigation proposals as a way to avoid preparation of an EIS.); Cabinet Mountains Wilderness v. Peterson, 685 F.2d 678, 682 (D.C. Cir. 1982)(Where an EA relies on mitigation to reach a Finding of No Significant Impact, that mitigation must be assured and must completely compensate for any possible adverse environmental impacts; Sierra Club v. Marsh, 769 F.2d 868, 877 (9th Cir. 1985)(As a general rule, the regulations contemplate that agencies ... should not rely on the possibility of mitigation to avoid the EIS requirement.). Davis v. Mineta, 302 F.3d 1104 (10th Cir. 2002)(mitigation measures are speculative without any basis for concluding they will occur.).

Again, because the EA fails to adequately analyze the impacts, and especially because the EA fails to include a section in the EA which analyzes the mitigation measures which could be used to address these impacts, the USFWS should immediately file a notice of intent to prepare an EIS. Any further NEPA analysis must use best available science, actual surveys, and other substantial evidence in the consideration of both the effectiveness of any such mitigation measures along with the existing ability of the USFWS to ensure the mitigation measures are implemented and enforced. Certainly, the USFWS has the legal ability, as set out in our scoping comments, to protect the Baca NWR from impacts of the Lexam proposal.

As set out above, the context and intensity of the impacts of the Lexam proposal leave no doubt that a full analysis in a Draft EIS is the proper means to apprise both the public and the decision makers of the range of alternative mitigation measures available, their effectiveness (both individually and cumulatively), and their enforceability. Further, because the Draft EA does not provide any ability for the public to comment on the effectiveness or enforceability of a range of alternative mitigation measures, a Final EA/FONSI cannot be issued based on the current Draft EA.

XI. CONCLUSION

In conclusion, we again urge USFWS to initiate an immediate EIS process that addresses the desire of millions of Americans that the Baca National Wildlife Refuge, our national treasure, be protected into perpetuity.

Thank you for considering our comments.

Respectfully submitted:



Ceal Smith
Citizens for San Luis Valley
Water Protection Coalition



Chris Canaly
San Luis Valley Ecosystem Council

Cc: Stephen Guertin,
Senator Ken Salazar,

Senator Wayne Allard,
Representative John Salazar,
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Senator Gail Schwartz
David Neslin,

Literature Sited

- Colorado Native Plant Society
1997 *Rare Plants of Colorado*, Second Edition, Falcon Press.
- Colorado Natural Heritage Program
1998 *Saguache County, Closed Basin Biological Inventory, Volume I & II: A Natural Heritage Assessment Final Report*. Prepared by Renée J. Rondeau, Daniel Sarr, Michael B. Wunder, Phyllis M. Pineda & Gwen M. Kittel. February.
- Connaughton, J.
2002 Memorandum for Heads of Federal Agencies, Council on Environmental Quality, Jan. 30, 2002 (see: [HYPERLINK
http://www.nepa.gov/nepa/regs/cooperating/
cooperatingagenciesmemorandum.html](http://www.nepa.gov/nepa/regs/cooperating/cooperatingagenciesmemorandum.html))
- EPA
2002 Protecting Drinking Water through underground Injection Control. Drinking Water Pocket Guide #2. EPA 816-K-02-001. p.7
- Garcia, R.
2007 Personal communication with C. Smith, May 2007 and July 2007.
- Hoey, N. & Geo, P., et al.
2006 *A Summary Review Including a Work Plan and Budget Proposal to Test Oil and Gas Prospects on the San Luis Basin Property, Colorado, USA for Lexam Explorations Inc.* Watts, Griffis and McOuat Limited, June 19., Toronto, Canada.
- Jodry, P.
2007 Scoping letter to USFWS.
- Langlois, D., J. Alves and J. Apker.
1994. *Rio Grande sucker recovery plan*. Colorado Division of Wildlife, Denver.
- National Park Service
2006 *Draft General Management Plan/Wilderness Study/Environmental Impact Statement*. National Park Service, U.S. Department of the Interior, April.
- Rees, D. E. & Miller, W. J.
2005 *Rio Grande Sucker (Catostomus plebeius): A Technical Conservation Assessment*. Prepared for US Forest Service, Rocky Mountain

Region, Species Conservation Project, May 16.

Schoenecker, K., Lubow, B., Zeigenfuss L., , and Julie Mao, J.

2005 *Annual Progress Report: Elk and Bison Grazing Ecology in the Great Sand Dunes Complex of Lands*. US Geological Survey Open-File Report 2006–1267.

Simberloff, D

2008 *Introduced Species: The Threat to Biodiversity & What Can Be Done*, (see: <http://www.actionbioscience.org/biodiversity/simberloff.html>)

Supreme Court of Colorado

1997 *Gerrity Oil & Gas Corporation v. Bob Magness*, No. 96SC215, Sept. 15.

Swift-Miller, S.M., B.M. Johnson, and R.T. Muth.

1999a. Factors affecting the diet and abundance of northern populations of Rio Grande sucker (*Catostomus plebeius*). *The Southwestern Naturalist* 44(2):148-156

1999b. Distribution, abundance, and habitat use of Rio Grande sucker (*Catostomus plebeius*) in Hot Creek, Colorado. *The Southwestern Naturalist* 44(1):42-48.

US Fish & Wildlife Service

2008 *Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition To List the Gunnison's Prairie Dog as Threatened or Endangered*. Federal Register, Vol. 73, No. 24, Tuesday, February 5, 2008, Proposed Rules.