

Resolving Environmental Barriers to Oil and Gas Production on Federal Lands

DE-IA26-03NT15420

Program

This project is part of an Interagency Agreement through a Memorandum of Understanding between DOE and the Bureau of Land Management (BLM): Federal Lands Technical Partnership.

Project Goal

The goal is to provide an objective, fact-based framework for analyzing both short- and long-term vegetation impacts from seismic operation and for developing mitigation measures during the preparation of Environmental Assessments and Impact Statements.

Performers

Bureau of Land Management (BLM)
Moab, UT

New Mexico State University (NMSU)
Las Cruces, NM

U.S. Geological Survey (USGS)
Canyonlands, UT

International Association of Geophysical Contractors (IAGC)
Houston, TX

Project Results

Scientific information from the seven tasks of the project will be used in preparing Resource Management Plans for long-term management of public land resources. The specific purpose of the vegetation study is to quantitatively measure impacts of past projects to various dynamics of perennial vascular vegetation and soil nutrient availability and to measure rates and extend of recovery of perennial vegetation and soil food webs from geophysical operations over time.

Benefits

The results of the study will provide fact-based analysis of the impact of seismic operations on vegetation and soils, so that industry, regulatory agencies, and the courts will have a true understanding of those impacts to use in determining land management issues on public lands.

Background

Vegetation is one of the most important resources managed by BLM. Without healthy, functioning vegetative communities and available nutrients, soils are at risk of increased erosion, watersheds cannot function properly to retain and purify water, desirable wildlife habitat and forage are not available, and livestock grazing cannot be sustained. Vegetative communities are also at increased risk of exotic species invasion from disturbance-related activities.

The Colorado Plateau has been identified by the USGS as one of the key regions in the Lower 48 states that still contain large quantities of undiscovered and undeveloped oil and gas resources, which if developed, could help ease U.S. dependence on imported oil. As such, the Colorado Plateau is likely to see continued exploration and development operations in the years to come.

Recent appeals of seismic permits issued in BLM field offices have resulted in litigation in both Federal District Courts and the Interior Board of Land Appeals (IBLA). In one case, a seismic operator was shut down by IBLA in the middle of a project, causing substantial economic hardship to the operator. A significant component of the litigations has revolved around questions regarding the significance of impacts from geophysical operations to the soils and vegetation.

Project Summary

The main task is to establish vegetation recovery timeframes from disturbance resulting from historic geophysical exploration in Southeast Utah and Southwest Colorado.

Research goals are to:

- ▶ Determine the impacts of seismic exploration to dominant plant species by measuring the frequency, cover, volume (height times width), leaf area, nutrient status, and flower production relative to adjacent, unimpacted plants of the same species.
- ▶ Compare available soil nutrients in impacted soils and adjacent unimpacted soils.
- ▶ Measure the rate and extent of recovery of selected species of plants.
- ▶ Compare the impacts to dominant species and nutrients and recovery of these species on the dominant Colorado Plateau soil types (sandy versus clay soils)
- ▶ Conduct sampling in geographically separated but replicated sites, allowing research results to be applied across other areas of the plateau with similar soils, vegetation, and landscape features.
- ▶ Develop predictive models for estimating recovery rates of dominant species and nutrients over a 50-year time period by sampling seismic lines from 1 to 50 years old.

The comparison of recovery rates among seismic sites can be done only for those that received similar disturbance. Because seismic lines were bladed until 30 years ago, sites will be divided into unbladed and bladed categories for comparisons.

Field teams from BLM, NMSU, and USGS will select sites and collect vegetation and soil samples and perform analysis. USGS will provide lab facilities, technical oversight, and assistance in interpreting results and preparation of the final report. IAGC will assist in identifications of seismic lines and dates.

Current Status (October 2005)

The first months of the contract were spent in designing sampling methods and identifying sampling sites. The process of sampling vegetation and soils began in the summer of 2004.

Another DOE/BLM joint study was started in FY2003 by the BLM Moab Field Office in the central part of the Colorado Plateau, looking at soil recoverability. The two projects will locate "twin" soil and vegetation sample sites whenever feasible. The current project has over two years to go, and research continues to establish vegetation recovery timeframes resulting from disturbance from historic geophysical exploration in southeast Utah and southwest Colorado.

Project Start: September 30, 2003

Project End: December 31, 2006

Anticipated DOE Contribution: \$985,000

Performer Contribution: \$170,000 (14.7% of total)

Other Government Organizations Involved

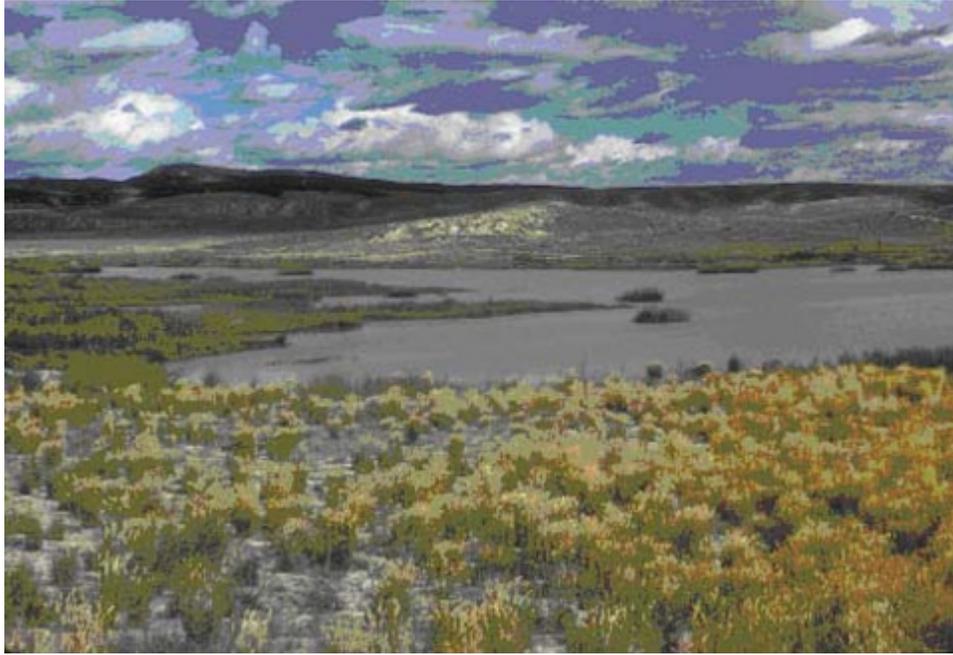
U.S. Department of Agriculture

U.S. Fish and Wildlife Service

Contact Information

NETL - John Ford (john.ford@netl.doe.gov or 918-699-2061)

BLM - Renee Floyd (renee_floyd@blm.gov or 202-452-5178)



Soils exposed in sparsely vegetated areas of the Colorado Plateau



Typical vegetation of the arid uplands of the Colorado Plateau.