

Powder River Basin CBNG Wildlife Taskforce Monitoring Plan

INTRODUCTION

The Powder River Basin Interagency Working Group (PRBIWG) was established as the forum for government agencies to address, discuss, and find solutions to issues of common concern to all parties involved in permitting and monitoring of Coalbed Natural Gas (CBNG) development. The PRBIWG organization is divided into three levels, with level one consisting of resource specific task groups for air, aquatics, water, and wildlife; task groups are comprised of technical specialists from the various government entities. The wildlife task group was given the following assignments: (1) Wyoming representatives to coordinate with Montana representatives to develop a monitoring plan which builds off the plan adopted in the Montana EIS, (2) develop triggers to identify when additional action is necessary, (3) develop monitoring protocol to assess habitat reclamation/restoration, and (4) provide technical assistance on wildlife issues to the PRBIWG state working groups (level II) and interagency coordinating committee (level III).

This plan satisfies the first three assignments; the monitoring plan shall identify and describe the individual monitoring tasks, provide summaries of related research projects, identify additional research tasks, and identify triggers for additional action.

MONITORING PLAN

Both Wyoming's Powder River Basin Oil and Gas Project Environmental Impact Statement (PRBEIS) and Montana's Statewide Oil and Gas Environmental Impact Statement (MTEIS) included mitigation, monitoring, and reporting plans which identified specific monitoring requirements. The wildlife task group has identified additional monitoring needs.

Table one identifies the individual monitoring tasks identified in the MTEIS and/or PRBEIS plans, and the additional tasks identified by the wildlife task group, and the scales the tasks are to be monitored at.

Table 1. Summary of Wildlife Monitoring Parameters Identified by the Wildlife PRBIWG Task Force.

Task	Project	Basin	Responsible Party	Cost Estimate	Status	Priority for Additional Funding
EIS required						
Bald eagle mortality	X	Continuous	BLM USDAFS	None	Ongoing – collateral duty	None
Bald eagle winter roosting	X	10 yrs	BLM USDAFS	\$25,000	Ongoing – project funding	Low
Bald eagle nesting	X	5 yrs	BLM USDAFS F&G	Included in raptor nesting	Ongoing- project & base funding	Low
Bald eagle productivity	X	Annual	BLM USDAFS F&G	Included in raptor nesting	Ongoing- project & base funding	Low
Bald eagle habitat change	X	2 yrs (change detection)	BLM USDAFS	Included in landcover change	New	High
Big game winter range use		As available	F&G	\$15,000	Pre-CBNG available	High
Black-footed ferret	X		BLM USDAFS	None	Prairie dog colonies being mapped	Low
Landcover (sagebrush) change	X	2 yrs (change detection)	BLM USDAFS	\$15,000	New	High MT (1) WY (1)
Mountain plover nesting	X	5 yrs (control)	BLM USDAFS	\$15,000	Scheduled 2004	High MT (3) WY - Low
Mountain plover habitat change	X	2 yrs (change detection)	BLM USDAFS	Included in landcover change	New	High
Mountain plover habitat reclamation		2 yrs (change detection)	BLM USDAFS	Included in landcover change	New	High

Task	Project	Basin	Responsible Party	Cost Estimate	Status	Priority for Additional Funding
Native American Culturally Significant Species		When Applicable	BLM			
Noxious weeds	X	3 yrs	BLM USDAFS	\$100,000	New	High
Prairie dog colonies	X	10 yrs	BLM USDAFS F&G	\$100,000	Completed 2004	None
Prairie dog colony change	X	2 yrs (change detection)	BLM USDAFS	Included in landcover change	New	High
Raptor nesting	X	5 yrs	BLM USDAFS F&G	\$100,000	Ongoing- project & base funding	Low (historically funded)
Roadside carcass monitoring	X	Continuous	BLM (BFO)	None	Ongoing – collateral duty	None
Sage grouse breeding	X	3 yrs	F&G	\$30,000	Ongoing- project & base funding	Low (historically funded)
Sage grouse winter use	X	3 yrs	F&G BLM USDAFS	\$30,000	New	High MT (2) WY (6)
Ute ladies' -tresses habitat	X	Baseline needed	BLM USDAFS	\$20,000	New	High MT WY (4)

Task	Project	Basin	Responsible Party	Cost Estimate	Status	Priority for Additional Funding
Ute ladies'-tresses habitat change	X	2 yrs (change detection)	BLM USDAFS	Included in landcover change	New	High
Ute ladies'-tresses habitat reclamation	X	Continuous	BLM USDAFS	Included in landcover change	New	High
Additional						
Infrastructure Change	X	2 yrs	BLM USDAFS	\$30,000	New	High
Migratory Bird Trend		5 yrs	BLM USDAFS USFWS	\$65,000	Partial current	High MT (5) WY (2)
Herp. Trend	X	5 yrs	BLM USDAFS	\$15,000	Partial current	High MT (4) WY (5)
Small Mammal Trend		5 yrs	BLM USDAFS	\$25,000	New	High MT (6) WY (3)

Responsible Party

BIA: USDI Bureau of Indian Affairs

BLM: USDI Bureau of Land Management, Buffalo and Miles City Field Offices

F&G: State Wildlife Agencies – Montana Fish, Wildlife & Parks Dept. and Wyoming Game & Fish Dept.

USDAFS: USDA Forest Service – primarily Thunder Basin National Grassland but may include Custer National Forest.

The authorizing agencies (BLM and USDAFS) are responsible for monitoring at the project level; the responsibility is frequently extended to the operators. Monitoring begins during project planning as a component of the permitting process. Project proponents are encouraged to minimally perform a habitat assessment, and preferably occupancy surveys, and discuss their project with an agency biologist prior to submitting their Applications for Permit to Drill (APD), to ensure projects are designed with minimal impact to wildlife. Project areas are monitored annually during project planning and construction phases. If occupied habitat is identified, monitoring continues for at least five years into project implementation.

The time frame identified within the items to be monitored at the Basin scale is a repetition frequency. Monitoring should be repeated at the identified time frame, i.e. 10 years for bald eagle winter roosting sites.

The Responsible Party column identifies the agencies responsible for monitoring at the basin scale. The BLM and USDAFS committed to monitoring these items in the MTEIS and PRBEIS. USDAFS refers primarily to the Thunder Basin National Grassland (TBNG), as the Custer National Forest (CNF) is not currently issuing mineral leases, and therefore does not have any mineral actions to monitor. The CNF does intend to continue to work cooperatively with and coordinate general wildlife surveys with the other task group agencies. The state wildlife agencies, Montana Fish, Wildlife, and Parks Department (MFWP) and Wyoming Game and Fish Department (WGFD), have been actively involved with monitoring the items where they are identified at the PRB scale. Wildlife is property of the state, and with the exception of ESA listed species, the state wildlife agency is the responsible management agency. BLM and USDAFS are predominantly habitat managers.

The Cost Estimate column indicates the estimated cost for monitoring the item at the basin scale for one monitoring cycle. Cost estimates are not included at the project scale as the costs are associated with project analysis and processing; monitoring responsibility at the project scale is frequently extended to the project proponent. Cost estimates are not included for each habitat change item as these items are expected to be included in one monitoring effort; habitat change monitoring was estimated in the landcover (sagebrush) change item.

Prioritization is based upon status of current monitoring efforts and funding levels. Monitoring items which have been traditionally monitored received lower prioritization than items which have not been funded or monitored. Biologically all items are of high priority. There were differences in prioritization between Montana and Wyoming; therefore we listed the highest priority items for each state. Prioritization is subject to change given changes in funding, species status, or other factors.

Monitoring methodology for most items identified at the project scale are included in Appendix 1, entitled “Wildlife Survey Protocol for Coalbed Natural Gas Development” by the Powder River Basin Wildlife Taskforce.” Project scale monitoring is conducted

“on the ground” wherever possible, aerial monitoring is authorized for some monitoring items under special circumstances. Basin scale monitoring is conducted during the same time periods as project scale monitoring, but often with greater emphasis on remote technologies such as aircraft or remote imagery.

EIS Required Tasks

Bald eagle

Bald eagle nesting and productivity monitoring shall be conducted as a component of the raptor nesting and productivity monitoring. Responsibility to report bald eagle mortalities is a condition included with every project authorization; project proponents are required to report mortalities to the U.S. Fish and Wildlife Service (USFWS) and the authorizing agency.

Bald eagle habitat change shall be monitored at the project and Basin scales. Nesting and roosting habitat loss shall be monitored during the project analysis. Basin scale monitoring shall occur as a component of the habitat change monitoring, focusing on loss of cottonwood and conifer forests.

TBNG monitors bald eagle productivity of their nests on a near annual basis. The Buffalo Field Office (BFO) does not have any bald eagle nests on surface they manage; any CBNG project within one-mile of a bald eagle nest will have a requirement for annual productivity monitoring. Miles City Field Office and FWP annually survey for nest occupancy (April) and productivity (June) along the Tongue and Yellowstone Rivers.

No agency is currently monitoring winter roosts on a regular basis. The Miles City Field Office (MCFO) surveyed bald eagle winter use along the Tongue River corridor during the winters of 2002/2003 and 2003/2004, they plan to continue this effort. **How frequently?** The BFO surveyed suitable cottonwood and conifer habitats during the winter of 2003/2004 and plan to repeat the survey this winter. TBNG has not monitored their roost sites in recent years.

Big game winter range

Both MFWP and WGFD routinely monitor winter big game distribution. However, at least for the WGFD, most surveys have been conducted following major weather events. MFWP annually conducts post hunt population surveys, and spring-time population surveys. Regular surveys of CBNG development areas with and without severe weather events would be beneficial. Winter range use data can be combined with CBNG project maps maintained by the BLM and USDAFS and satellite imagery to evaluate CBNG-big game relationships.

MCFO, Bureau of Indian Affairs (BIA), MFWP, and the Northern Cheyenne Tribe surveyed post winter mule deer use along the Northern Cheyenne Reservation’s southern boundary during 2004. It is anticipated this project and/or related projects shall continue.

Landcover (Sagebrush) change

A requirement in the EIS mitigation, monitoring, and reporting plans was that the sagebrush habitat removed within individual projects would be calculated. Landcover change can be monitored using image classification of remote imagery, in doing so all cover classes could be efficiently monitored. Items included within landcover change are as follows: sagebrush change, bald eagle habitat change, mountain plover habitat change, Ute ladies'-tresses habitat change, and infrastructure change.

The BFO, WGFD, and U.S. Geological Survey cooperated in 2003 to analyze water cover change within the PRB between 1993 and 2003. This project identified changes in water cover but did not seek to uncover specific causes. The proposed monitoring shall seek to identify the change agents.

Mountain plover

Project areas containing suitable plover nesting habitat are inventoried for mountain plover nesting activity. Occupied nest sites are monitored for productivity annually during the planning and construction phases, and minimally for the first five years following construction completion. Monitoring methodology is included in Appendix 1.

Mountain plover nesting habitat shall be estimated at the Basin scale with a predictive habitat model. BFO and MCFO have each developed models to identify potential mountain plover habitat. BFO is currently working to refine their model. Based on the project inventories and additional field work the models shall be refined and possibly combined over the next five years. Mountain plover habitat change and habitat reclamation are components of the habitat change monitoring.

Native American Culturally Significant Species

The Northern Cheyenne were concerned that CBNG development may affect mule deer movement across the reservation boundary. MCFO conducted aerial surveys along the reservation boundary during spring 2004 and plan to repeat in 2005.

Noxious Weeds

County weed and pest districts maintain maps of known infestations, but no systematic inventory of the entire PRB exists. A coordinated inventory of invasive (noxious) weeds across the PRB is necessary to document the current distribution. This inventory would be repeated every three years to evaluate weed infestation trends. Many of the target species such as leafy spurge and tamarisk could be inventoried through analysis of remotely sensed imagery. Other species, such as cheat grass, may require more labor intensive inventory methods.

Prairie dog colonies

Project proponents are required to map prairie dog colonies within their project areas. MCFO mapped their black-tailed prairie dog colonies in 2004. The BFO and WGFD have cooperated in mapping black-tailed prairie dog colonies across the black-tails Wyoming range. This mapping effort should be completed soon. The project has

involves mapping prairie dog colonies from color-infrared aerial photography and ground verification on a sample set. A basin-wide mapping effort should be repeated on a ten year cycle if suitable imagery is available. Imagery used for the current effort came from a state-wide image library which cost \$1.1 million. The cost estimate is for image analysis (colony mapping) and limited field verification; it does not include image acquisition. If feasible, prairie dog colony change shall be monitored as a component of the habitat change monitoring; otherwise it shall be a component of the ten year colony mapping.

Raptor Nesting

Project areas are routinely inventoried for raptor nesting activity as part of the project planning. Occupied nest sites are monitored for productivity annually during the planning and construction phases, and minimally for the first five years following construction completion. Monitoring methodology is included in Appendix 1.

MCFO inventoried raptor nests within Big Horn County during 2004 and plans to continue monitoring productivity. The CNF routinely monitors raptor nests (golden eagle, northern goshawk, and prairie falcon) on the Ashland Ranger District. BFO, TBNG, and WGFD have cooperatively monitored raptor nesting activity in the Wyoming portion of the PRB since 1998. BFO and TBNG have provided funding (approximately \$10,000 annually) and the WGFD has provided personnel. Raptor nest sites are monitored annually on the Thunder Basin National Grasslands, the remainder of the Basin shall be monitored on a five year cycle.

Power line electrocutions have been a long term concern within the Powder River Basin. Power lines shall be continuously inspected while in the field, and all new power lines constructed to the Avian Power Line Interaction Committee standards (APLIC 1996) and additional specifications identified by the USFWS within the PRB Biological Opinion. Twenty-two raptors including 16 golden eagles were electrocuted within Wyoming's Powder River Basin in 2003; 12 electrocutions were on recently constructed lines which did not fully meet APLIC standards (USFWS).

Roadside carcasses

The BFO records roadside carcasses (all species larger than jack-rabbits) associated with oil and gas project roads while conducting routine field work. A relational database enables reporting at the project and basin levels.

Sage Grouse

Sage grouse breeding monitoring seeks to identify breeding sites (leks) and count male attendance to enable population estimations. Project scale monitoring shall occur for any project with sagebrush habitat. Authorizing agencies (BLM and USDAFS) are responsible for project scale monitoring and frequently extend the responsibility to project proponents. In Wyoming, the WGFD seeks to monitor sage grouse breeding sites on a three year rotation, to ensure coverage throughout sage grouse population cycles, which average ten years. The BFO and TBNG have traditionally assisted the WGFD

monitoring effort both financially and with personnel. MFWP, CNF, and MCFO have also cooperated annually on sage grouse lek surveys.

MCFO conducted winter sage grouse surveys during the winters of 2002/2003 and 2003/2004. The WGFD has been developing a sage grouse winter habitat model, which received limited testing during winter 2003/2004. Additional survey work is necessary to document winter habitat use and validate the WGFD model.

Ute ladies'-tresses orchid

Project areas containing suitable ladies'-tresses habitat are inventoried. Documented populations shall be monitored annually during the planning and construction phases, and minimally for the first five years following construction completion. Monitoring methodology is included in Appendix 1. The Wyoming Natural Diversity Database (WYNDD) has developed a predictive habitat model; however the model is based on a limited sample size, the four known Wyoming orchid populations. Additional survey work is necessary across the PRB to refine WYNDD's model. Ute ladies'-tresses habitat change, soil moisture, shall be monitored as a component of the habitat change modeling.

Additional Tasks

Infrastructure Change

In concert with the landcover change monitoring, to better enable cause-and-effect analysis development of CBNG infrastructure should be inventoried. This may be possible through image analysis, project files, and existing CBNG data bases (i.e. Wyoming Oil and Gas Commission).

Migratory Bird Trend

BLM and the USDAFS maintain sensitive species list which include many migratory birds. Little information is available about populations of many of these species for the PRB. Some baseline breeding bird inventories have been conducted in Montana as cooperative efforts including the MCFO, Custer National Forest, Montana Natural Heritage Program, US Geological Survey, and University of Montana.

No migratory bird monitoring has taken place within the BFO. Coal mines in the Powder River Basin monitor migratory birds of high federal interest, currently not examining trend. **Padlock Ranch? Breeding Bird Survey (BBS) routes?** The BLM Wyoming State Office and USDAFS Region 2 in cooperation with Wyoming Partners in Flight and the Rocky Mountain Bird Observatory have developed a breeding-bird monitoring program for the state of Wyoming using point transects. The point transect portion of this project is designed to be statistically rigorous and produce data for analysis of population trends of approximately 161 bird species that breed in Wyoming (65% of the regular breeding avifauna). The project was initiated in 2002, unfortunately no point transects were located within the Powder River Basin due to the limited public land surface. The Wildlife taskforce would like to fund a statistically significant number of additional point-transects within the PRB, following the RMBO methodology to monitor breeding bird population trends within the PRB and enable comparison with the RMBO state-wide

data. In the state-wide program the point transects are being monitored for three consecutive years. The PRB point-transects would also be read initially for three consecutive years and then repeated every five years.

Herptile Trend

Little information is available about reptile and amphibian populations within the PRB. MCFO is planning to inventory reptiles and amphibians within a limited study area during 2004. A program to monitor population trends would be beneficial to better understand PRB populations and possible natural gas development related effects. The point-transects established for migratory bird monitoring may also function for the herp monitoring. Herptile monitoring should be repeated on a five year cycle.

Small Mammal Trend

BLM and the USDAFS maintain sensitive species list which include small mammals. Little information is available about small mammal populations within the PRB. A program to monitor population trends would be beneficial to better understand PRB populations and possible natural gas development related effects. The point-transects established for migratory bird monitoring may also function for the small mammal monitoring. Small mammal monitoring should be repeated on a five year cycle.

CURRENT RESEARCH

Aquatic Inventories

The CNF is completing a survey of aquatic macroinvertebrates and amphibians for the Ashland Ranger District. TBNG is currently mapping all their drainages including biological fauna (amphibians and fish).

Black-tailed prairie dogs

TBNG is currently supporting a multi-faceted prairie dog study, to determine activity levels in existing colonies for potential black-footed ferret reintroduction, and to better understand the dynamics and distribution of Sylvatic plague at the landscape scale.

Ferruginous hawk

The TBNG, two PRB coal producers, and most recently the BFO are involved with an international ferruginous hawk research program involving numerous partners. Objectives of the research include: investigating regional and long-range movements, identifying wintering areas for the local breeding population, evaluating fidelity to winter and breeding areas, and to assess survival and mortality factors.

Invasive Plants

The USGS in cooperation with the BFO is sampling sites to identify invasive plants within the BFO associated with CBNG developments . A specific component of the project is to map the tamarisk distribution within the BFO. TBNG is mapping tamarisk distribution and control activities. WY Cheatgrass Taskforce proposes to map and annually update cheatgrass distribution across Wyoming.

Mountain Plover Habitat Model

Describe BFO's habitat model

Sage grouse

BFO and MCFO in partnership with the University of Montana, MFWP, WGFD, US Department of Energy, Petroleum Association of Wyoming, and additional partners have initiated two PhD level research projects to aid conservation planning for sage grouse in the Powder River Basin of SE Montana and NE Wyoming. The vision is to develop planning tools that provide partners with the information necessary to support the National Environmental Policy Act (NEPA) by providing information on sage grouse habitat and populations and how to mitigate CBM effects. The projects test actual CBM impacts and the sufficiency of current BLM protective measures enabling better protection of sage grouse and their habitat facing CBM development.

During the initial year of the project, several sage grouse within the CBM study site were confirmed to have died as a result of West Nile virus. An intensive West Nile monitoring program resulted which led to initiation of a West Nile virus-sage grouse-CBM research project with the above partners and additional partners including Montana State University, University of Wyoming, Wyoming State Veterinary Laboratory, and others. The project shall identify and evaluate relationships between sage grouse and West Nile virus, and between West Nile virus and CBNG development.

Check with Thunderbird on their South PRB study – applicable to our group?

RESEARCH NEEDS

The Task Group identified the following research needs for which funding should be sought:

- Mountain plover habitat use within CBNG developments and effectiveness of protection measures.
- Social/economic impacts such as recreational use on wildlife habitat
- Bald eagle food/foraging habits within prairie – nesting and wintering.
- Raptor habitat use within CBNG developments and effectiveness of protection measures, and should include an analysis of prey base trends.
- Big game habitat use within CBNG developments and effectiveness of protection measures.

TRIGGERS FOR ADDITIONAL ACTION

Triggers indicate when additional measures may be necessary to adequately protect wildlife resources. The Wyoming Greater Sage Grouse Conservation Plan has identified a ten percent population decrease over a ten year period or a ten percent population decrease over three consecutive years as triggers for implementation of management practices. A ten percent reduction in either population or habitat is a reasonable trigger for evaluation of protection measures for all species. If a trigger is reached, protection measures shall be evaluated and modified if determined necessary.

Endangered Species Act consultation has identified additional triggers for the bald eagle and mountain plover; the action agencies are required to reinitiate consultation when 50% of the allowed take is reached. For bald eagles these triggers would include two eagle mortalities associated with power lines or vehicle collisions, or one winter roosting area. The FWS anticipates up to two mountain plovers per year could be taken within Wyoming as a result of vehicle collision; if this level of take is reached in any year, then additional protection measures shall be evaluated. The FWS has estimated that up to 3% (6,720 acres) of the potentially occupied mountain plover habitat (224,000 acres) within the Wyoming PRB could be taken as a result of CBNG activities; the trigger to evaluate mountain plover protection measures would be a loss of 1.5% (3,360 acres) of the occupied habitat. Even though mountain plovers are no longer being considered for ESA listing, they are still a rare species and the identified triggers make biological sense.