

BIOLOGICAL ASSESSMENT

For

Bill Barrett Corporation's Stone Cabin 3-D Seismic Survey Project Carbon County, UT

August 10, 2003

I. Introduction

The purpose of this biological assessment (BA) is to evaluate the potential impacts of Bill Barrett Corporation's proposed Stone Cabin 3D Seismic Survey Project to federally listed threatened, endangered or candidate (TEC) plant and animal species that potentially occur in the project area. This document will determine whether any such species or habitat are likely to be affected by the proposed action, and will be used in determining whether formal consultation or a conference is necessary as per 50 CFR 402.12. The Endangered Species Act (ESA) of 1973 (PL 93-205), as amended, requires federal agencies to insure that any activities they authorized, fund, or carry out, do not jeopardize the continued existence of any wildlife species and their critical habitats (Section 7).

Brief Overview of the Project Area. The proposed project is located in northeastern Carbon County, Utah, on the West Tavaputs Plateau, and would include portions of T12S, R14 to 17E and T13S, R15 to 17E. Due to the high elevation of the Project Area, the predominant yearly moisture is in the form of snow. During the summer months short-duration, high intensity thunderstorms are common. Average annual precipitation ranges from ten inches in the lower elevations to 20 inches in the higher elevations. Elevations in the Project Area range from approximately 5,000 feet in the canyon bottoms to 8,200 feet on the plateau.

Vegetative cover within the area is mostly comprised of pinyon pine and juniper but there are areas of aspen, pine, fir, and openings of upland grass/sagebrush. Deep rugged canyons divide the Project Area. The majority of the area drains northeasterly to Nine Mile Creek, with a lesser portion of the drainage flowing east in Jack Creek to the Green River. Riparian areas exist along Nine Mile Creek and along the bottoms typically of the major canyons draining into Nine Mile

Creek and the Green River. Riparian areas of the tributary canyon bottoms are distributed along the canyon bottoms within 330 feet of the drainage bottoms in the Project Area. The Project Area is primarily used for livestock grazing, wildlife habitat, wild horse habitat, recreation/hunting, and oil and gas production. There are hydrocarbon fields in this area including Peters Point, Stone Cabin, and Nine Mile Canyon oil and gas fields.

In the last 60 years, virtually all of the state, federal and a majority of the private land have been under lease. In April of 2002 BBC acquired the majority of the present oil and gas field from Wasatch Oil & Gas who over the previous six years had purchased the leases held by Mission Energy, McCullis Oil, Se-go Oil and Gas, and Burrs Oil.

The environmental assessment (EA) prepared for this project contained three alternatives that were carried through analysis. These were the proponent proposed action, the BLM preferred alternative and the no action alternative. Since the proposed action was deemed to have the greatest potential affect on federally listed species, this alternative was selected for consultation with the USFWS. This BA analyzes the potential affects to federally listed species from implementation of the proposed action. The EA does analyze the impacts to the federally listed species for all three alternatives.

II. Proposed Action

Dawson Geophysical Company (DGC), under contract to Bill Barrett Corporation (BBC), proposes to conduct an exploratory, three-dimensional (3D), geophysical seismic survey of the Stone Cabin 3D Seismic Survey Project Area (Project Area)(Plate I). The proposed Project Area is approximately 90 square miles in size (57,500 acres) and occupies portions of townships T. 12 S., R. 14 to 17 E. and T. 13 S., R. 15 to 17 E. of northeastern Carbon County, Utah. This seismic survey would facilitate development of a 3D image of the geologic structure and stratigraphy underlying the Project Area. The exploratory, seismic survey would involve: a) the generation of ground vibration by both detonation of explosives placed underground and by "vibroseis" equipment; and b) the recording of reflected sound waves and patterns arising from the different underground geologic strata.

The proposed ground-vibration source points are arranged into lines that are positioned approximately in a southwest-northeast array oriented diagonally to the receiver lines within the accessible portions of the Project Area. However, the ideal configuration of continuous and parallel source lines is highly modified for this proposed project due to the numerous topographic constraints to continuous source-vehicle travel across the Project Area. The source lines would ideally run parallel, 1,980 feet apart, with source points (either shot holes or vibroseis shaking locations) spaced approximately 314 feet apart along the source line. There would be a total of approximately 5,388 source points totaling approximately 320 miles of source lines.

The recording of seismic information would involve a total of approximately 71 parallel lines of receiver (geophone) stations laid out in a north-south orientation. The parallel lines would

ideally be spaced at approximately 1,320 feet from each other. Ideal receiver locations are also modified due to topographic constraints on access. Of the 71 receiver lines, 18 lines of 110 stations (six receiver geophones per station) would be used at a time for recording the seismic data.

Methods of generating ground vibration would differ across the project area based on vegetation type, terrain, slope conditions, and other obstacles. Drilling of holes (shot holes) by off-road, buggy-mounted drills and the detonation of explosives (shots) placed in the shot holes would account for approximately 2,487 (46 percent) of the 5,388 source points. Heli-portable drill rigs would access approximately 2,375 source points (44 percent) on steeper and less accessible terrain. Vibrator (vibroiseis) buggies would access about 526 source points (ten percent) on less steep terrain confined to existing roads and trails.

Access to significant portions of the Project Area is very difficult due to the steep topography that constitutes the walls of four major canyons found within the area. These steep slope areas are shown in Plate I. Within these areas, activities would be confined to pedestrian traffic roads in the canyon bottoms and to heli-portable locations on ridge spurs in a few areas of Jack Canyon and its tributaries. Approximately 19,000 acres of the 57,500-acre Project Area would be subject to very limited access due to these factors.

Elements of the proposed action, which could potentially affect federally listed TEC species or habitats, include actions which could have physical surface affects and actions which could have indirect affects or cause disturbance and/or displacement. Surface effects as a direct result of the seismic survey operations including buggy passage (drilling and vibratory) to source locations, heli-portable drilling, and establishment of staging areas) would total approximately 226 acres (0.39 percent) of the estimated 57,500-acre Project Area. No effects from earthwork are proposed. No impacts from pedestrian receiver point placement and recording is anticipated.

The total of 211 acres of new effects on federal lands represents approximately 0.42 percent of the total of 50,800 acres of federal, BLM-administered lands in the Project Area. Surface effects of private lands would total approximately three acres of the estimated total of 1,174 acres on private land in the Project Area. Surface effects on State of Utah lands would total approximately 12 acres of an estimated 5,520 acres of state land in the Project Area. Actual surface effects that would require reclamation practices, other than minimal hand-raking as part of backfilling the shot hole following explosive shot placement and application of seed where vegetative cover is absent, would total approximately 10 acres should all two acres of each of the five staging areas require scarification and reseeding. Other areas, as determined by the Authorized Officer of the BLM, on a case-by-case basis may also be reseeded to avoid soil erosion and deter future use of the tracked areas by off road vehicles.

Surface Affects of Buggy Passage. Surface effects from passage of floatation-tired buggies would be temporary (<1 year) and would not require reclamation. Operation of buggy drills on slopes generally less than 20 percent slope and careful operation of the buggies would reduce potential for excessive slippage and possible loss of vegetative cover along with soil loosening. Vegetation beneath the tires would be compressed and some breakage of branches of small

shrubs would occur. This is not expected to significantly affect forage production or result in mortality of affected vegetation.

Surface Affects of Buggy & Heli-Portable Drilling. Surface affects would occur within a 4-foot diameter circle centered on the drill and shot hole location; 13 square feet x number of shot holes / 43,560 square feet per acre = number of acres. Shot holes would be backfilled including final raking and seeding where vegetative cover is disturbed and/or lost. No clearing or grading by heavy equipment of routes for the off-road drilling program would be conducted. In some instances, tree limbs may be pruned to allow passage of drill buggies and to prevent additional damage to the affected tree.

Surface Affects of Vibroseis. The vibroseis would be done on existing roads and therefore would not result in any additional surface affects.

Surface Affects of Staging Area. Five 2-acre (approximately 300 feet x 300 feet) sites for staging seismic survey activities would be used. Although a majority of the land at each staging area is pre-disturbed ground, a 300 feet x 300 feet area was staked as potential disturbed ground and biological resource surveys were completed for the five proposed staging areas. Those portions of the staging areas affected by passage and parking of regular tired vehicles and trailers and floatation-tired buggies and by placement and storage of heavy equipment would be scarified and re-seeded.

Table 1 quantifies the surface affects by type of action associated with the proposed action.

Indirect affects include helicopter operations, buggy and vibroseis activity, human activity, and potential increase in ORV use subsequent to the action. These activities would occur over a period of three months between May 15 and November 1 in compliance with the Price MFP's wildlife seasonal restrictions described in Appendix A, Applicable BLM Stipulations, of the Environmental Assessment. In areas of raptor nesting activities, the period of operations would occur between July 16 and November 1.

Indirect Affects of Helicopter Operations. Helicopters would operate throughout the project area. The focal point of helicopter operations would be the five staging areas. Helicopters would be used to lay and gather receiver lines across the project area (Plate 1) as well as transport heli-portable drill rigs to those areas proposed for helicopter drilling (Plate 1). Use of the five staging areas, shown in Plate 1, will change as the seismic program progresses across the project area. Two helicopters would be used for the Project, and would operate only in daylight hours ferrying the heli-portable drills and receiving-station cache bags in separate operations.

Table 1 - Source Generation and Associated Effects -Alternative A - Proposed Action (Entire Project) and Locations Within the Mexican Spotted Owl Designated Critical Habitat

Activities/Facilities	Source Points/ Staging Areas				Effects								
	Number		Percentage		Acreage ¹				Percentage ²				
					Surface Disturbance		Off-Road Use		Surface Disturbance		Off-Road Use		
	Alt A	MSO	Alt A	MSO	Alt A	MSO	Alt A	MSO	Alt A	MSO	Alt A	MSO	
Drill/Shot													
Buggy Drill	2,487		46		0.74		215		<0.01		.37		
Heli-portable Drill	2,375	837	44	35.2	0.71	0.24	0.00	0.00	<0.01	<0.01	0.00	N/A	
Vibroseis													
Vibrator buggy	526	162	10	30.8	0.00	0.04	0.00	0.00	0.00	<0.01	0.00	N/A	
Subtotal	5,388	999	100	18.5	1.45	0.28	215	0.00	<0.01	<0.01	.37	N/A	
Staging Areas	5		N/A		10.00		0.00		0.00		0.00		
TOTAL	N/A		N/A		11.45		215		0.02	0.02	.37	N/A	

Indirect Affect of Buggy Drilling Activity and ORV Use. Where possible, the buggy drills would proceed from one source location to the next with a single pass per source line. The buggy drills would traverse the entire seismic line where possible to complete the drilling of the line's shot holes. Existing roads and trails would be used where possible to access the next seismic line (Plate 1). Exceptions to traveling the entire seismic line would include altered routes to avoid environmentally sensitive areas (cultural resources, sensitive biological conditions, etc.) or obstacles such as rock features or trees.

Due to the remote location of this area and limited traditional use of ORV's, it is not expected that this action will increase the level of use by ORV's. Traditional ORV user's in this area are primarily hunting public, and their use level is more influenced by hunting regulations and big game population levels. Although base levels of ORV use are not expected to change, it is possible that some use of tracked terrain may occur.

Subsequent use of buggy-drill two-tracks by off-road recreational vehicles (ORVs) would more likely occur where the two-tracks are noticeable and where the apparent route takes the ORV user to an area of interest. Although use of the buggy two-tracks is possible, the amount of use, especially repeated use is expected to be minimal due to the limited ORV activity in the Project Area for much of the year and the wide tracks created by the buggy drills are too wide to be used by most recreational four-wheelers. In addition, buggy drill operators would be directed to approach road and trail crossings at a reduced angle so to have the tracks be less noticeable to recreationists. Signs requesting recreationists to remain on existing roads and trails may also be posted. On a case by case basis, BLM would require reseeding on tracks as appropriate to discourage ORV use. Operation of buggy drills on slopes generally less steep than 20 percent and careful operation of the buggies would reduce potentials for excessive slippage and possible loss of vegetative cover along with soil loosening.

Indirect Affects of Buggy and Vibroseis Activity. Vibrator (vibroseis) buggy access and operations would be confined to existing roads in the bottoms of four major southwest-northeast trending canyons (Harmon, Cottonwood, Dry and Jack) in the Project Area (Plate I). Four vibrator buggies in two groups of two would travel the existing roads in-line, bumper-to-bumper, stopping to shake at each surveyed vibroseis-designated source point in the roaded-canyon bottoms in sequence and in context of the overall source generation plan.

Indirect Affects of Shot Hole Detonations. The shots would be detonated individually within the shot pattern determined appropriate for those geologic conditions underlying each of the 18-line groups of receiver stations. Detonation would typically produce a small plume of dust within a few feet of the shot hole. The dust is generated by the shock wave reaching the surface and causing suspension of fine soil particles. Although standard safety procedures do not allow a person to stand at a shot hole during detonation, a person, if standing at the site, would hear a noticeable thud-like sound while feeling a noticeable jolt. The jolt would not be sufficient to cause any instability in a standing person. In general, a person would typically be able to feel the vibration from the shot detonation at 50 feet from the shot hole, but not at 100 feet.

Indirect Affects of Human Presence. Ground crew members would walk to the first dropped cache bag on their receiver line, prepare the radio-telemetric station, and manually connect cables and geophones. Seismic cable and attached geophones would be laid out by hand around each station in a pre-determined pattern. The geophones mounted on a four-inch spike would be placed into the soil using foot pressure. The crewmember would then proceed on foot to the second bag and repeat the set up of the first station (receiver location) and its network of cable and geophones. Stations, cable, and geophones would be laid out in this manner at each station across the Project Area as shown in Figures 2-1 and 2-2. Up to 18 lines of 110 geophone stations would be active at any time throughout the data acquisition task.

III. Species Potentially Impacted by the Proposed Action

Through coordination between the U.S. Fish and Wildlife Service (USFWS), the Utah Division of Wildlife Resources (UDWR) and the BLM Price Field Office, a list of what federally listed threatened, endangered or candidate species that potentially occur within the area of the proposed action was formulated. Table 2 below includes those species that occur or potentially occur within the Carbon, Emery, Duchesne and Uintah County area of Southeastern Utah.

TABLE 2

<u>Floral Species</u>	<u>Scientific Name</u>	<u>Status</u>
Barneby peppergrass	<i>Lepidium barnebyanum</i>	Endangered
Barneby thelypody	<i>Schoenrambe barnebyi</i>	Endangered
Despain footcactus	<i>Pediocactus despainii</i>	Endangered
Shrubby reed-mustard	<i>Schoenrambe suffrutescens</i>	Endangered
Wright fishhook cactus	<i>Sclerocactus wrightiae</i>	Endangered
Clay thelypody	<i>Schoenrambe argillacea</i>	Threatened
Jones cycladenia	<i>Cycladenia humilis var jonesii</i>	Threatened
Last chance townsendia	<i>Townsendia aprica</i>	Threatened
Maguire daisy	<i>Erigeron maguirei var maguirei</i>	Threatened
Uinta Basin hookless cactus	<i>Sclerocactus glaucus</i>	Threatened
Ute ladies tresses	<i>Spiranthes diluvialis</i>	Threatened
Winkler footcactus	<i>Pediocactus winkleri</i>	Threatened
Graham beardtongue	<i>Penstemon grahamii</i>	Candidate
Horseshoe milkvetch	<i>Astragalus equisolensis</i>	Candidate
White River beardtongue	<i>Penstemon scariosus var. albifluvis</i>	Candidate
<u>Mammalian Species</u>	<u>Scientific Name</u>	<u>Status</u>
Black-footed ferret	<i>Mustela nigripes</i>	Endangered/Extirpated
Gray wolf	<i>Canis lupus</i>	Endangered/Extirpated
Brown (Grizzly) bear	<i>Ursus arctos</i>	Threatened/Extirpated

Canada lynx

Lynx canadensis

Threatened

Avian Species

Scientific Name

Status

Southwestern willow flycatcher

Empidonax traillii extimus

Endangered

Whooping Crane

Grus americana

Endangered/Experimental

Bald eagle

Haliaeetus leucocephalus

Threatened

Mexican spotted owl

Strix occidentalis lucida

Threatened

Mountain plover

Charadrius montanus

Candidate

Yellow-billed cuckoo

Coccyzus americanus

Candidate

Fish Species

Scientific Name

Status

Bonytail

Gila elegans

Endangered

Colorado pikeminnow

Ptychocheilus lucius

Endangered

Humpback chub

Gila cypha

Endangered

Razorback Sucker

Xyrauchen texanus

Endangered

IV Species Occurrences and Habitat Needs

Environmental Industrial Services, a consulting firm under direction of BLM and in consultation with USFWS surveyed the project area for all potentially occurring federally listed TEC species within the Carbon, Emery, Duchesne and Uintah Counties. Results and documentation of these surveys are included in Appendix B. The following species narratives summarize basic habitat requirements for all species in Table 2.

Floral Species

Barneby peppergrass (*Lepidium barnebyanum*). Areas suspected to contain potential habitat for Barneby peppergrass consist of white shale outcrops on the Uinta formation in pinyon-juniper (mainly on ridge crests) between 6,200 and 6,500 feet elevation, flowering from May to June.

Barneby thelypody (*Schoenocrambe barnebyi*). Areas suspected to contain potential habitat for Barneby thelypody consist of mixed shadscale, erigonum and ephedra communities on the Chinle Formation between 5,600 and 5,700 feet elevation, flowering in May.

Despain footcactus (*Pediocactus despainii*). Areas suspected to contain potential habitat for the despair footcactus consists of open pinyon-juniper community on limestone gravels at 6,000 to 6,200 feet elevation, flowering from late April to early May.

Shrubby reed-mustard (*Schoenocrambe suffrutescens*). Areas suspected to contain potential habitat for shrubby reed-mustard consist of calcareous shale of the Green River Shale formation in shadscale, pygmy sagebrush, mountain mahogany, juniper, and other mixed desert shrub communities between 5,400 and 6,000 feet elevation, flowering from May to mid August.

Wright fishhook cactus (*Sclerocactus wrightiae*). Areas suspected to contain potential habitat for the Wright fishhook cactus consists of openings in salt desert shrub to the juniper community at 4,790 to 6,120 feet elevation on the Mancos Shale Formation, flowering from April to May.

Clay thelypody (*Schoenocrambe argillacea*). Areas suspected to contain potential habitat for clay thelypody consist of mixed desert shrub community of shadscale, Indian ricegrass and pygmy sagebrush species on the lower Uinta and upper Green River Shale formations between 5,000 and 5,650 feet elevation, flowering from May to early June.

Jones cycladenia (*Cycladenia humilis var jonesii*). Areas suspected to contain potential habitat for Jones cycladenia consist of gypsiferous saline soils on the Chinle, Cutler and Summerville formations in cool desert shrub and juniper communities between 4,400 and 6,000 feet elevation, flowering from mid May to June.

Last chance townsendia (*Townsendia aprica*). Last chance townsendia is found in clay, clay-silt, or gravelly clay soils derived from the Mancos Formation; these soils are often densely covered with biological soil crusts. The species grows in salt desert shrub and pinyon-juniper communities, at elevations ranging from 1686 to 2560 meters.

Maguire daisy (*Erigeron maguirei var maguirei*). Areas suspected to contain potential habitat for Maguire daisy consist of cool, moist mesic wash bottoms and dry, partially shaded slopes of eroded sandstone cliffs. Wingate, Chinle and Navajo Sandstone formations in mountain shrub, Douglas fir, ponderosa pine, and lower limits of the juniper woodland communities between 5,600 and 7,200 feet elevation. Flowering for the Maguire daisy is from June to July.

Uinta Basin hookless cactus (*Sclerocactus glaucus*). The Uinta Basin hookless cactus is known to be found in Duchesne, Uintah, and northern Carbon counties. The cactus is found occupying gravelly hills and terraces on alluvium soils. They live in cold shrub communities between 4,700 and 6,000 feet in elevation. They flower between the months of May and June. The cactus has all straight spines and the principle spine often arches upward.

Winkler footcactus (*Pediocactus winkleri*). Areas suspected to contain potential habitat for the Winkler footcactus consist of salt desert shrub communities between 4,790 and 5,210 feet elevation, flowering from late March to Mid May.

Graham beardtongue (*Penstemon grahamii*). Areas suspected to contain potential habitat for Graham beardtongue consist of sparsely vegetated desert shrub and pinyon-juniper communities on shaley talus knolls between 4,600 and 6,700 feet elevation, flowering from May to mid June.

Horseshoe milkvetch (*Astragalus equisolensis*). Areas suspected to contain potential habitat for horseshoe milkvetch consist of sagebrush, shadscale, horsebrush, and other mixed desert shrub communities on the Duchesne River formation between 4,790 and 5,185 feet elevation, flowering from May to early June.

White River beardtongue (*Penstemon scariosus* var. *albifluvis*). Areas suspected to contain potential habitat for White River beardtongue consist of mixed desert shrub and pinyon-juniper communities, on sparsely vegetated shale slopes on the Green River formation between 5,000 and 6,000 feet elevation, flowering from May to June.

Mammalian Species

Black-footed ferret (*Mustela nigripes*). The relationship between black-footed ferrets and prairie dogs has long been known. Black-footed ferrets live in the burrows made by prairie dogs and probably exploit these rodents as their major food source. The high biomass of potential prey species and the abundance of burrows are equally important factors in attracting black-footed ferrets to this habitat. The Black-footed ferret is unlikely to occur in the proposed project area because of the lack of its major prey species, prairie dogs.

Gray wolf (*Canis lupus*). The gray wolf was once common in Utah, but it was extirpated (exterminated) from the state by early settlers. Recent reintroductions of the gray wolf have occurred in Idaho and Yellowstone National Park, but reintroductions are not currently planned for Utah. Recent reports, however, suggest that gray wolves has moved to Utah from surrounding states as documented with the capture of a solitary wolf in northern Utah.

Brown (Grizzly) bear (*Ursus arctos*). Grizzly bears are found in mountain forests, open meadows, and river valleys. This species is extirpated within the state.

Canada lynx (*Lynx canadiensis*). In the western States lynx live in spruce/fir forests at high elevations. This habitat is not present within the project area.

Avian Species

Bald eagle (*Haliaeetus leucocephalus*). During the breeding season bald eagles are closely associated with water, along coasts, lakeshores, and/or riverbanks. During the winter bald eagles tend to concentrate wherever food is available. This usually means open water where fish and waterfowl can be caught. They also winter on more upland areas feeding on small mammals and deer carrion. At wintering areas, bald eagles commonly roost in large groups.

Though no bald eagles are known to nest in Carbon County, they can often be found near lakes and reservoirs, as well as within upland areas between late fall and early spring. The Green River, approximately four miles to the east of the proposed action area, is known to be a winter use area supporting up to 30 individuals distributed along 90 miles of the Green River. Bald eagles are infrequent winter visitors within the affected area.

Mexican spotted owl (*Strix occidentalis lucida*). The Mexican spotted owl (MSO) is found in a variety of habitats ranging from Southern Utah, Colorado, Arizona, New Mexico, West Texas, and Central Mexico. Specifically, in Utah they are primarily found in deeply entrenched canyons that have numerous cliffs and ledges. This species primarily nests in closed canopy forests and rocky canyons. This species will nest in stick nest built by other birds, on debris

platforms in trees, and in tree cavities. The MSO begins courtship in March and the first eggs are laid in early April. Females incubate the eggs for approximately 30 days. The nest is active and maintained until fall when the young owls will leave the natal area. They normally feed on small nocturnal mammals, birds, bats, and arthropods. Little is known about the habitat range of foraging owls except that they forage a wider range of habitats than they utilize for roosting.

Surveys of the recently Designated Critical Habitat area for this species were conducted within or in close proximity to the project area in 1997 and 2000 (Willey 1997 and 2000). Though not confirmed present within the project area, three occupied territories are located 25-30 miles south of the project area. During 2001, 2002, and 2003, surveys of all potentially suitable nesting/roosting habitat (1997 and 2000 MSO Habitat Models) in the project area were conducted following USFWS Protocol. Survey documentation forms are included in Appendix C. No MSOs were located.

Mountain plover (*Vcharadrius montanus*). The mountain plover is typically associated with shortgrass prairie habitat, composed primarily of blue grama (*Bouteloua gracilis*) and buffalo grass. Habitat characteristics in the Uinta Basin are sparse sagebrush/grass communities. Three nests were found in 1993 in Duchesne County, Utah, and additional nesting activity was found in 1994 and 1995.

Southwestern willow flycatcher (*Empidonax traillii extimus*). The Southwestern Willow Flycatcher breeds in dense riparian habitats along rivers, streams, or other wetlands. The vegetation can be dominated by dense growths of willows (*Salix* sp.), seepwillow (*Baccharis* sp.), or other shrubs and medium-sized trees. There may be an overstory of cottonwood (*Populus* sp.), tamarisk (*Tamarix* sp.), or other large trees, but this is not always the case. In some areas, the flycatcher will nest in habitats dominated by tamarisk and Russian olive (*Eleagnus angustifolia*). One of the most important characteristics of the habitat appears to be the presence of dense vegetation, usually throughout all vegetation layers present.

Almost all Southwestern Willow Flycatcher breeding habitats are within close proximity (less than 20 yards) of water or very saturated soil. This water may be in the form of large rivers, smaller streams, springs, or marshes. At some sites, surface water is present early in the nesting season, but gradually dries up as the season progresses. Ultimately, the breeding site must have a water table high enough to support riparian vegetation.

Whooping crane (*Grus americana*). Whooping cranes nest in marshy areas among bulrushes, cattails, and sedges that provide protection from predators as well as food. In 1967, the U.S. Fish and Wildlife Service began a whooping crane recovery program. To date, three facilities are now breeding whooping cranes in captivity for reintroduction into the wild, and flocks have been reintroduced into the wild at two sites. These efforts began because of the risk of losing the entire wild flock of whooping cranes due to a natural disaster such as disease or hurricane, and to help increase whooping crane numbers.

An effort to create a wild flock with an alternate migratory route was initiated in 1975, using sandhill cranes as 'foster parents.' Whooping crane eggs were placed in the nests of sandhill

cranes on their nesting grounds at the Grays Lake National Wildlife Refuge in Idaho. The sandhills reared the chicks as their own, teaching them feeding habitats and ultimately a new 850-mile migratory path to the Bosque Del Apache National Wildlife Refuge in New Mexico.

Yellow-billed cuckoo (*Coccyzus americanus*). Yellow-billed cuckoos are considered a riparian obligate and are usually found in large tracts of cottonwood/willow habitats with dense sub-canopies (below 10 m [33 ft]). Nesting habitat is classified as dense lowland riparian characterized by a dense sub-canopy or shrub layer (regenerating canopy trees, willows, or other riparian shrubs) within 100 m (333 ft) of water. Over story in these habitats may be either large, gallery-forming trees (10-27 m [33-90 ft]) or developing trees (3-10 m [10-27 ft]), usually cottonwoods. Nesting habitats are found at low to mid-elevations (750-1820 m [2500-6000 ft]) in Utah. Cuckoos may require large tracts (40-80 ha [100-200 ac]) of contiguous riparian nesting habitat; however, cuckoos are not strongly territorial and home ranges may overlap during the breeding season.

Fish Species

Bonytail chub (*Gila elegans*). Historically Bonytail chubs exist throughout the Colorado River drainage. Recently, isolated captures of Bonytail chubs have been made in the Colorado River basin but recruitment to the population is extremely low or nonexistent. The decline of the Bonytail chub is attributed to dam construction and associated water temperature changes. Other factors contributing to the reduced numbers include flow depletion, hybridization, stream alterations associated with dam construction, and the introduction of non- native fish species.

Colorado pikeminnow (*Ptychocheilus lucius*). The Colorado pikeminnow had a historic range from Green River, Wyoming to the Gulf of California, but the species is now confined to the Upper Colorado River basin mainstream and larger tributaries. The Lower Green River between the Price and San Rafael Rivers is known to contain an abundant population of this species. The species decline can be attributed to direct loss of habitat, changes in water flow and temperature, blockage of migrations, and interactions with introduced fish species. Colorado pikeminnow adults are thought to prefer deepwater eddies and pools or other areas adjacent to the main water current, whereas the young inhabit shallow, quiet backwaters adjacent to high flow areas. This species feeds on invertebrates while young but gradually become piscivorous after one year perennial stream flows.

Humpback chub (*Gila cypha*). The humpback chub is believed to have inhabited all of the large rivers of the upper Colorado River basin and canyons of the lower Colorado River basin. Presently the humpback chub can be located in and above the Grand Canyon, Arizona, and the major tributaries to the Colorado River. The states stream alteration, including dewatering, dams and channelization, are factors causing the decline of the species. The humpback chub normally lives adjacent to high velocity flows, where they consume plankton and small invertebrates.

Razorback sucker (*Xyrauchen texanus*). Historic distribution of the razorback sucker was mainly along the mainstream of the Colorado, Green and San Juan Rivers. They presently only occur in a portion of their former range in these rivers and are normally found in water four to ten feet deep with area of strong currents and backwaters. The razorback sucker feeds on small invertebrates, animals, and organic debris on the river bottom.

V. Determination of Effects

Species Not Affected While the area affected does not contain suitable habitat for all of the species listed above; suitable habitat does exist for many of the species. The flowing narrative describes those species, which either do not occur within the affected area or will not be affected by elements of the proposed action. No further analysis will be given to those species (listed below) for which no effect has been determined.

- Barneby peppergrass (*Lepidium barnebyanum*) - This species was not identified within the area during the 2003 TES inventory. This area does contain habitat requirements similar to that which this species is primarily located within.
- Barneby thelypody (*Schoenocrambe barnebyi*) - This species was not identified within the area during the 2003 TES inventory. This area does contain habitat requirements similar to that which this species is primarily located within.
- Despain footcactus (*Pediocactus despainii*) - This species was not identified within the area during the 2003 TES inventory. This area does contain habitat requirements similar to that which this species is primarily located within.
- Shrubby reed-mustard (*Schoenocrambe suffrutescens*) - This species was not identified within the area during the 2003 TES inventory. This area does contain habitat requirements similar to that which this species is primarily located within.
- Wright fishhook cactus (*Sclerocactus wrightiae*) - This species was not identified within the area during the 2003 TES inventory. This area does contain habitat requirements similar to that which this species is primarily located within.
- Jones cycladenia (*Cycladenia humilis var jonesii*) - This species was not identified within the area during the 2003 TES inventory. This area does contain habitat requirements similar to that which this species is primarily located within.
- Clay thelypody (*Schoenocrambe argillacea*) - This species was not identified within the area during the 2003 TES inventory. This area does contain habitat requirements similar to that which this species is primarily located within.

- Last chance townsendia (*Townsendia aprica*) - This species was not identified within the area during the 2003 TES inventory. This area does contain habitat requirements similar to that which this species is primarily located within.
- Maguire daisy (*Erigeron maguirei* var *maguirei*) - This species was not identified within the area during the 2003 TES inventory. This area does contain habitat requirements similar to that which this species is primarily located within.
- Uinta Basin hookless cactus (*Sclerocactus glaucus*) - This species was not identified within the area during the 2003 TES inventory. This area does contain habitat requirements similar to that which this species is primarily located within.
- Winkler footcactus (*Pediocactus winkleri*) - This species was not identified within the area during the 2003 TES inventory. This area does contain habitat requirements similar to that which this species is primarily located within.
- Graham beardtongue (*Penstemon grahamii*) - This species was not identified within the area during the 2003 TES inventory. This area does contain habitat requirements similar to that which this species is primarily located within.
- Horseshoe milkvetch (*Astragalus equisolensis*) - This species was not identified within the area during the 2003 TES inventory. This area does contain habitat requirements similar to that which this species is primarily located within.
- White River beardtongue (*Penstemon scariosus* var. *albifluvis*) - This species was not identified within the area during the 2003 TES inventory. This area does contain habitat requirements similar to that which this species is primarily located within.
- Black-footed ferret (*Mustela nigripes*) - The area affected by the proposed action does not contain any prairie dog towns, which provide black-footed ferret habitat.
- Gray wolf (*Canis lupus*) - With the exception of a recent sighting of gray wolf in Northern Utah, this species is extirpated from the State. This area does contain habitat requirements similar to that which this species is primarily located within.
- Brown (Grizzly) bear (*Ursus arctos*) - This species is extirpated from the State. This area does contain habitat requirements similar to that which this species is primarily located within.
- Canada lynx (*Lynx canadiensis*) - This species was not identified within the area during the 2003 TES inventory. The project area does not contain habitat requirements which this species is primarily located within.

- Bald eagle (*Haliaeetus leucocephalus*) - Though this species does occur as a infrequent winter visitor, the area affected does not contain any nesting sites for the bald eagle, nor is it typical nesting habitat for this species. Bald eagle migration corridors along the Green River would not be affected due to the Price MFP's wildlife seasonal restrictions (Appendix A).
- Mountain plover (*Vcharadrius montanus*) - This species was not identified within the area during the 2003 TES inventory. This species is known to occur on the Miton Benches, 15 plus miles north of the project area. Some habitats present in the eastern portion of the affected area may provide suitable nesting habitat for the mountain plover.
- Southwestern willow flycatcher (*Empidonax traillii extimus*) - This species was not identified within the area during the 2003 TES inventory. This species is known to occur along the Green River. Riparian habitats in the project area are dramatically different than those along the Green River and are not considered typical nesting habitat for this species.
- Whooping crane (*Grus americana*) - Though this species does occur, the area affected does not contain any nesting sites for the whooping crane, nor is it typical nesting habitat for this species.
- Yellow-billed cuckoo (*Coccyzus americanus*) - Though this species does occur, the area affected does not contain any nesting sites for the yellow-billed cuckoo, nor is it typical nesting habitat for this species.
- Bonytail chub (*Gila elegans*), Colorado pikeminnow (*Ptychocheilus lucius*), humpback chub (*Gila cypha*), and razorback sucker (*Xyrauchen texanus*) - The area affected does lie within the Green River drainage basin. There is no habitat to support any of these species within the project boundaries. There would be no measurable increase in soil erosion/stream sedimentation in the affected watersheds or downstream from the Project Area.

Species That May be Affected

- Mexican spotted owl (*Strix occidentalis lucida*). A determination of may effect but not likely to adversely affect has been established for the Mexican spotted owl. Surveys conducted by David Willey, PhD. in 1997 and 2000 indicate that this species was not confirmed present within the proposed action area. Surveys were conducted in potential nesting/roosting habitat (1997 and 2000 habitat model) within the project area by Environmental Industrial Services following USFWS protocol (2001 through 2003). These surveys did not verify the presence of occupied habitat within the project area.

The eastern portion of the project area does contain Designated Critical Habitat for the MSO (Plate II). The 1997 and 2000 MSO Habitat Models show potentially suitable nesting/roosting habitat in the major canyons of the project area, also shown on Plate II.

The Federal Register, 50 CFR Part 17 describes three levels of habitat management for this species: protected areas, restricted areas, and other forest and woodland types. Protected areas are those that are within mixed conifer or pine-oak types with slopes greater than 40 percent, and where timber harvest has not occurred in the last 20 years. Mixed conifer forests are those generally comprised of Douglas fir, white fir, ponderosa pine, and/ or quaking aspen. Another protected habitat is described as canyon habitat. This habitat is described as deep, narrow, rocky, mesic canyons with slopes greater than 40 Percent. Both mixed conifer and canyon habitat areas are preferred by the owls for nesting, roosting, and foraging.

Restricted habitats are those that include mixed conifer (Douglas fir, white fir), pine-oak forest, and riparian areas outside of protected areas. Pine-oak forests as they pertain to the Mexican spotted owl are those that contain any Chihuahua pine and those forests that have ponderosa pine and Gambel oak. These areas are identified with the recovery plan as areas needed for future growth of the species.

The last habitat management type is other forest and woodlands. These include those consisting predominantly of ponderosa pine, spruce- fir, pinyon-juniper, and aspen. Though these habitats do not contain occupied nesting or roosting habitat, they do provide possible foraging habitat.

Activities proposed within protected and restricted habitats (greater than 40 percent slope) within or outside of Designated Critical Habitat (Plate II) include, heli-portable, vibroseis, and receiver line locations. Vibroseis and receiver line locations will have no surface affects to these habitats or result in adverse habitat modification for the MSO. Since there is no occupied habitat present in the project area, all operations (vibroseis, heli-portable drilling and receiver line locations) will have no indirect affects or disturbance to this species.

Heli-portable operations will have very limited surface affects and no adverse modification of primary constituent elements of habitat within protected and restricted habitats both inside and outside of Designated Critical Habitat. Table 3 shows the number of heli-portable source locations and acres of surface affects in protected and restricted habitats within the project area. The discontinuous nature and the minor amount of surface affects to vegetation from heli-portable operations would make these surface affects unnoticeable to the casual observer and not result in an adverse modification of restricted or protected habitats.

The majority of operations proposed and the five staging areas in this action would occur in foraging habitat for the MSO. Surface affects from all proposed operations except staging areas will have minimal temporary affect to vegetative resources. Five staging areas totaling 10 acres (two acres each) will result in a loss of vegetation within this foraging habitat. Reseeding of these areas will assure these impacts are temporary in nature and should have no long-term affect to the ability of this area to be used as

foraging habitat for MSOs. Since these habitat areas are not presently occupied, indirect effects of these actions would not likely affect the MSO.

Table 3

Activities/Facilities	Total Source Points/ Staging Areas		Source Points Located Within MSO Designated Critical Habitat	
	Number	Percentage	Number	Percentage
Drill/Shot				
Buggy Drill	2,487	46		
Heli-portable Drill	2,375	44	837	0.15
Vibroseis				
Vibrator buggy	526	10	162	0.03
Subtotal	5,388	100	999	0.18
Staging Areas	5	N/A	N/A	N/A
TOTAL	N/A	N/A	N/A	N/A

VI. Listed Species Biological Assessment Summary

Table 4 identifies those species, which could theoretically be present within the proposed project area, and summarizes potential effects.

TABLE 4

Project Name:

Bill Barrett Corporation's Stone Cabin 3-D Seismic Survey Project Carbon County, Utah

Species	No Effect	May Effect - Not Likely to Adversely Affect	Likely to Adversely Affect	Beneficial Effect
Barneby peppergrass	X			
Barneby thelypody	X			
Despain Footcactus	X			
Shrubby-reed mustard	X			
Wright fishhook cactus	X			
Clay thelypody	X			
Jones cycladenia	X			

Species	No Effect	May Effect - Not Likely to Adversely Affect	Likely to Adversely Affect	Beneficial Effect
Last chance townsendia	X			
Maguire daisy	X			
Uinta Basin hookless cactus	X			
Ute ladies tresses	X			
Winkler footcactus	X			
Graham beardtongue	X			
Black-footed farret	X			
Gray wolf	X			
Brown (Grizzly) bear	X			
Canada lynx	X			
Southwestern willow flycatcher	X			
Whooping crane	X			
Bald eagle	X			
Mexican spotted owl		X		
Mountain Plover	X			
Yellow-billed cuckoo	X			
Bonytail	X			
Colorado pikeminnow	X			
Humpback chub	X			
Razorback sucker	X			

VII Mitigation

There were no stipulations developed specifically to address potential affects to the federally listed species. However, there are several applicant proposed protective measures listed in the Proposed Action and BLM standard protection measures, which would serve as conservation measures for the MSO. These include:

- Posting of signs as needed to minimize subsequent ORV usage in the area,
- Reseeding of drill holes located in the Designated Critical Habitat, and
- Reseeding of tracks in areas where BLM deems necessary
- No cross-country travel would be permitted on slopes greater than approximately 20 percent by buggy drills; all other vehicles would be restricted to existing roads and trails.

VIII Cumulative Impacts

Cumulative impacts are those impacts that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.

The primary existing disturbances in the Project Area are the existing roads and oil and gas development and outdoor ORV and other recreational uses. Of the 57,500 acres within the Project Area, there are about 11 producing wells and about 5 abandoned or dry hole wells as well as about 70 miles of existing roads. Total existing soil disturbances are estimated to be about 22 acres (15 pads and roads, which are in various degrees of reclamation and re-vegetation). The Proposed Action would add approximately 10 acres of additional surface disturbance and approximately 215 acres of other minimal surface affects. The 215 acres of surface affects are not considered a significant impact to the soils or vegetation resources. A similar seismic project, completed by Veritas, showed minimal evidence of any disturbance one year after cessation of the project. It is assumed that the Stone Cabin 3D Seismic Survey would have comparable results in approximately the same amount of time.

There would be no measurable increase in soil erosion/stream sedimentation or downstream effects in the affected watersheds. Wildlife species populations would not be significantly impacted from anticipated cumulative effects, due to the overall small percentage of land disturbed and the seasonal wildlife closure dates set forth by BLM.

Bill Barrett Corporation (BBC) has indicated an interest in additional wells to further explore the potential for natural gas. Currently there is no proposed action regarding this interest. The data collected by the seismic program should help to develop such a proposal.

Cumulative affects to the Mexican spotted owl, from past actions, the proposed action, and reasonable foreseeable actions should not adversely affect this species or adversely affect habitat potentially suitable for nesting/roosting. This is based on not only the extremely small percentage of the landscape affected by cumulative actions but also the location of these small disturbances relative to protected and restricted habitats. Protected and restricted habitats occur on slopes of 40 percent or greater and are simply not conducive for development activities. Specific to MSO Designated Critical Habitat, BLM's past and foreseeable future management of the Desolation Canyon Wilderness Study Area to preserve wilderness characteristics assures that the Designated Critical Habitat within the project area will remain available and predominantly unaltered to accommodate expansion of the Mexican Spotted Owl population. Other ongoing BLM programs and recent management actions undertaken in and adjacent to the project area have directly benefited the Mexican Spotted Owl and many other wildlife species. BLM's Riparian Initiative for the 1990's requires BLM to manage riparian habitats (a constituent element for Mexican spotted owl) in proper functioning condition. Over the past 10 years, changes in grazing prescriptions in three allotments within the project area have resulted in immediate and ongoing improvement to over 135 linear miles of stream riparian habitat (Sheep Canyon, Dry Canyon, Cottonwood Canyon and the Green River).

Table 5 identifies those species, which could theoretically be cumulatively affected by the proposed Project.

TABLE 5
Cumulative Impacts to Species

Species	No Effect	May Effect - Not Likely to Adversely Affect	Likely to Adversely Affect	Beneficial Effect
Barneby peppergrass	X			
Barneby thelypody	X			
Despain Footcactus	X			
Shrubby-reed mustard	X			
Wright fishhook cactus	X			
Clay thelypody	X			
Jones cycladenia	X			
Last chance townsendia	X			
Maguire daisy	X			
Uinta Basin hookless cactus	X			
Ute ladies tresses	X			
Winkler footcactus	X			
Graham beardtongue	X			
Black-footed ferret	X			
Gray wolf	X			
Brown (Grizzly) bear	X			
Canada lynx	X			
Southwestern willow flycatcher	X			
Whooping crane	X			
Bald eagle	X			
Mexican spotted owl		X		
Mountain Plover	X			
Yellow-billed cuckoo	X			
Bonytail	X			
Colorado pikeminnow	X			
Humpback chub	X			
Razorback sucker	X			

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