West Douglas Herd Area Amendment
to the
White River Resource Management Plan

ENVIRONMENTAL ASSESMENT

(CO-WRFO-03-050-EA)

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Executive Summary

This environmental assessment analyzes the environmental impact of proposed alternatives for amendments to decisions in the White River Resource Management Plan (RMP) concerning management of wild horses in the West Douglas Herd Area. The West Douglas Herd Area is located in Northwestern Colorado, southwest of the town of Rangely. It is approximately 50 miles north of Grand Junction. The planning area is the West Douglas Herd Area, whose boundaries are described and depicted in the White River Record of Decision and Approved Resource Management Plan (ROD/RMP), approved July 1997. The Herd Area encompasses 123,387 acres of federal land managed by BLM, and 4,754 acres of private land (see Map 1-1). All but 15 acres of the private land are split estate on which BLM manages the federal mineral rights. All of the planning area is within the White River Resource Area, and within Rio Blanco County, Colorado.

The purpose of the RMP Amendment is to identify whether it is feasible at this time to manage wild horses in the West Douglas Herd Area of the White River Resource Area, while protecting resource values, providing for multiple uses, and improving the health of public lands. The current White River Record of Decision and Approved Resource Management Plan (ROD/RMP), which was approved in 1997, calls for the removal of all horses from the West Douglas Herd Area after ten years. During the interim (0-10 years) the ROD/RMP allows for management of a herd of 0 to 50 horses in the Herd Area.

The specific intent of this planning process is, with integrated public involvement, to develop and analyze a full range of alternatives specifically focused on wild horses and other resources within the West Douglas Herd Area. BLM has determined that such detail and focus may not have been sufficiently addressed and documented in the existing White River ROD/RMP, which has a resource-area-wide scope.

As a result of internal and public scoping BLM identified fourteen issues and concerns:

- **Range of Wild Horse Management Options and Statutory Requirements.** Have all reasonable management options been considered and analyzed? Do management alternatives meet statutory requirements?

- **Wilderness.** Can wild horse management activities and wilderness values within Oil Spring Mountain Wilderness Study Area co-exist? Additionally, how will wild horse management affect Conservationist Wilderness Proposal areas?

- **Oil and Gas Development.** Will there be additional stipulations for oil and gas development? Will oil and gas development cause wild horses to disperse into areas outside of the herd area?

- **Forage Allocation.** What proportions of available forage should be allocated to livestock, wild horses, and wildlife?

- **Wild Horse Distribution Outside of Herd Area.** Over the past 30 years, wild horses in the West Douglas Herd area have tended to roam to the south and southwest, outside the boundaries of the herd area. How can this be prevented along the length of the southwest boundary inside of Oil Spring Mountain Wilderness Study Area?

- **Conflicts with Hunting.** Helicopter use during gather operations during hunting season could scare away large game. In addition, this issue includes all potential impacts of the wild horse herd on big game and hunting.

- **Implications for Watersheds.** Will wild horses cause damage to watersheds? What will be the impact of horses on limited watering sites that are critical to livestock and wildlife?

Public scoping comments revealed an additional concern that existing water sources may not be enough to support, or encourage proper distribution of a wild horse herd.

- **Protection of Cultural Resources.** Will management of wild horses impact the numerous cultural sites and artifacts found throughout the West Douglas Planning Area?

- **Socio-Economics.** Will the management of horses affect social or economic status of the region that has an economy based largely on oil and gas development, hunting, and livestock?

- **Fiscal Feasibility.** Can BLM manage wild horses in the West Douglas Herd Area given current and future fiscal resources? Public scoping helped identify an additional concern about the capability of BLM's National Wild Horse and Burro Adoption Program to remove excess horses from a new herd management area in the long term.

- **Public Need for Wild Horses.** This is a new issue identified from public scoping comments. Several comments indicated a concern that, given the existing and future multiple uses on public lands in the planning area, and considering the nearby Piceance-East Douglas Herd Management Area, is there a public need for an additional herd management area? Other comments identified some reasons to consider a new herd management area, such as historical relationship between the people of the area and wild horses, and the potential for genetic Spanish heritage within the West Douglas herd.

- **Herd Viability.** Does the West Douglas Wild Horse Herd possess the genetic variability necessary to maintain a viable, self-sustaining population in the long term? What actions can be taken to increase herd genetic variability?

- **Health and Safety.** Due to the rough terrain within the planning area, there is concern over safety during gather operations. Safety is a greater concern during the use of alternative capture methods.

- **Rangeland Health.** The Wild Free Roaming Horses and Burros Act requires BLM to maintain a thriving ecological balance when managing wild horses. Any management plan that BLM develops for wild horses must include methods to prevent concentrations of wild horses at locations vulnerable to vegetative damage, as well as a plan to monitor conditions to identify when damage is occurring.

To focus the planning process on the purpose and need, and to help address some of the issues and concerns, BLM developed the planning criteria listed below.

- The planning area is defined as the public and private lands within, or immediately adjacent to the West Douglas Herd Area as specified in the White River Resource Management Plan (July 1997). See the Geographic Scope of the Planning Area in Paragraph 1.3 above.

- All alternatives must comply with the Wild and Free Roaming Horses and Burros Act and 43 CFR Part 4700.

- Management of wild horses will not cause excessive harm to the thriving natural ecological balance (TNEB). Implementing this RMP amendment will result in the planning area meeting public land health standards or moving toward meeting the standards from the current situation.

- Data analysis will include an evaluation of herd genetic viability.

- BLM must be able to accomplish the actions required by the plan amendment utilizing current and foreseeable future fiscal and human resources.

- The planning process will determine forage allocation within the planning area for wild horses, livestock, and wildlife.

- The Environmental Assessment will include an analysis of capture techniques that may be used to gather wild horses from within or adjacent to the herd area in the future.

- Current vegetative assessments for the planning area are valid and no additional vegetative inventory will be necessary.

- The Environmental Assessment will include economic and fiscal impact analyses.

- Decisions in the White River Resource Management Plan and BLM Interim Management Policy regarding management of the Oil Springs Mountain Wilderness Study Area for wilderness character and values remain applicable. BLM will not include a review of wilderness potential for Conservationists' Wilderness Proposal (CWP) areas during this planning process. However, the environmental assessment will include analysis of the impacts of each alternative on wilderness character and potential of CWP areas.

- The Oil and Gas Reasonable Foreseeable Development scenario found in the 1997 White River Proposed Resource Management Plan remains valid and will be used for analysis.

Considering the purpose and need, planning criteria, issues, and concerns, BLM developed eight alternatives (Alternatives A through H). Alternative A would be to simply continue current management as described in the current White River ROD/RMP. Prior to developing the remainder of the alternatives, BLM conducted an analysis of available forage within the herd area based on current range conditions. This analysis revealed that there is far less forage available (6947 animal unit months or AUMs) to livestock and wild horses than is currently allocated (9080 AUMs). This revised allocation was used to determine the balance of horses and livestock in Alternatives B through H. Alternative B would be to remove all wild horses and adjust the livestock forage allocation based on the new estimate. BLM selected Alternative B as the Preferred Alternative because it best addressed the issues and concerns, would cause the least environmental impacts, and was the most practical from a management perspective of all of the alternatives. Alternative C would allow for a small herd of wild horses (29 to 60) with the assumption that a herd of this size would remain in the wild horse preferred habitat within the southern-most portion of the herd area. Surface disturbance stipulations would be imposed with this alternative (as well as Alternatives E, F, and G) to protect key and preferred wild horse habitat from damage that could result from oil and gas development. Alternative D was eliminated from detailed analysis because under this alternative management of wild horses would be problematic as horses would continue to move outside the herd area. Alternative E would allow for a mid-sized herd that would be encourage to distribute throughout the entire herd area by creation of a migration corridor through the dense oil and gas development that currently exists in the central portion of the herd area. Additional surface disturbance stipulations would be part of this alternative, to create and maintain the migration corridor. A fence would also be built along the boundary of the Oil Springs Wilderness Study Area (WSA) and along the southern boundary of the herd area to stop horses from migrating southward, outside the herd area. Alternative F also calls for management of a mid-sized herd, but the herd would be restricted to the southern portion of the herd area by a fence. A portion of this fence would follow the southern and western perimeter of the herd area, bisecting the WSA. Under Alternative G, all available forage (except that allocated to wildlife) within the herd area would be allocated to a large herd of wild horses. No livestock grazing would be allowed on public lands within the herd area. The entire herd area boundary would be enclosed by a fence, which would bisect the WSA as described under Alternative F. Alternative H was eliminated from detailed analysis for the same reason as Alternative D. Full descriptions of the alternatives can be found in Section 2 of this document.

The table on the following pages (Table S-1) gives a brief overview of the environmental impacts of each alternative by resource.

Table S-1: Summary Comparison of the Potential Impacts from Alternatives

Resource	Alternative A	Alternative B	Alternative C	Alternative E	Alternative F	Alternative G
Wild Horses	By 2007 the majority of horses in the West Douglas herd would have been captured and removed using the traditional method of helicopter drive-trapping. Direct impacts to the herd are the permanent loss of a unique herd of wild animals. There is no mitigation for impacts resulting from total removal. Genetic studies concur that the West Douglas herd is unique unto itself; not founded on strays that drifted west from the Piceance-East Douglas herd. Genetics and history unique to this herd would be lost. Direct individual impacts to the animals include injury and mortality during capture, handling and shipping. The incidents of injury and mortality are expected to increase with the use of alternative capture methods. Members of the herd would either be placed with adopters; placed in sanctuaries; would die during capture, handling or holding; or would be humanely destroyed due to injuries incurred during capture, handling or holding. An unknown number of horses would evade	Impacts resulting from selection of this alternative are identical to the impacts identified in Alternative A. The time period between initiation of the total removal may differ from Alternative A. However, the time period for completion would not differ vastly from alternative A because of the expectation that individual horse sightings will continue to be reported for years into the future.	A small herd of wild horses would continue to inhabit the portion of the Herd Area considered critical wild horse habitat. The horses likely would remain within the boundaries of the HA because of the relatively small herd size, and the consequent lack of internal competition for forage, water and cover. Surface disturbance stipulations and related conditions of approval for oil and gas development would be identified, but would not automatically be imposed unless deemed necessary on an individual case basis. These stipulations /conditions of approval may be paramount in the maintenance of long term prime wild horse habitat. The risk of horses relocating into other areas may be limited because of existing and projected oil and gas development. and the relatively small herd size managed under this alternative. The lack of fencing resulting in horses displacing outside the herd area onto private and public lands is a valid concern but the probability of drift occurring with the numbers of animals managed under this	With the southern boundary fenced, horses are expected to adapt or move north, possibly improving distribution of horses into the northern portions of the herd area. Establishment of a wild horse habitat corridor would partially mitigate the genetic risk associated with managing fewer than 150 horses. The corridor would encourage herd interaction, and consequent genetic and allelic interchange. Herd genetics would be further strengthened through the periodic introduction of healthy, well-adapted mares from other HMAs. Fencing the horses from a portion of their home range could result in an unforeseeable number of horses crossing onto the wrong side of the new fence, regardless of the design and upkeep of the fence. The crossing could be through gates inadvertently left open or over fence wire that is damaged by elk and deer crossing. Horses relocating outside their management area would require increased time and cost during gather activities and increased time and effort responding to reports of	The benefits of establishing a habitat corridor would not be realized with this alternative. Complications arising from fencing horses out of a portion of their home range are the same as discussed in Alternative E. Genetics variability would be strengthened through the periodic introduction of healthy mares from other herds. The mares would be selected from HMAs with similar topography and climatic extremes. This action would mitigate the risks associated with managing a herd size of less than 150 horses. Existing herd allelic diversity would be strengthened by increasing the number of contributing adults in the herd. This would be accomplished during gather activities through manipulation of the herd sex ratio. Impacts to the herd and to individual horses resulting from capture, holding, transportation and release back into the HA would be the same as those identified in alternative C. The impacts associated with age selective	This alternative may require the development of supplemental water sources in order to maintain desirable wild horse distribution through the HA. The Northern end of the herd area has few reliable year-round waters. During drought years when Main-stem Douglas Creek and the ponds dry up, water could become be critical for the horses. This will be particularly acute if a drought occurs during the period the horse population is reaching its upper limit. Genetics variability would initially be strengthened through the periodic introduction of healthy mares from other herds. Horse genetics would be monitored and introduction discontinued after herd genetics strengthen. The considerations of mare selection would be the same as those identified under Alternative C. Impacts to the herd and to individual horses resulting from capture, holding, transportation and release back into the HA would be the same as those identified in alternative C. The impacts associated with age selective

Resource	Alternative A	Alternative B	Alternative C	Alternative E	Alternative F	Alternative G
Wild Horses (Continued)	capture by traditional capture methods. Some of the horses that evade traditional capture would be trapped using alternative methods of net-gun and helicopter hazing. An unforeseeable number of horses would evade any method of capture. BLM would continue responding to horse sighting reports, verifying or discarding these reports and attempting to capture horses for an unforeseeable number of years. These efforts would be costly and time consuming There would be no conflicts between wild horses and oil and gas development. There would be no conflicts between wild horses and the livestock industry.		alternative is unknown at this time. Genetics variability would be strengthened through the periodic introduction of healthy mares from other herds. The mares would be selected from HMAs with similar topography and climatic extremes. This action would mitigate the risks associated with managing a herd size of less than 150 horses. Existing herd allelic diversity would be strengthened by increasing the number of contributing adults in the herd. This would be accomplished during gather activities through manipulation of the herd sex ratio. Direct impacts to individual animals are the same as those identified in alternative A for traditional capture. Alternative capture methods would not be necessary. Direct impacts that will affect the entire herd include displacement of bands during capture, fragmentation of bands after release, stress of re-establishing band structures, and altering herd demographics (age and sex ratios). The effects of successive age selective removals on populations would result	the horses being outside their management area. Fences would not be constructed on the western and northern boundaries, where horses could move outside the herd area, and potentially onto private lands. Genetics variability would be strengthened through the periodic introduction of healthy mares from other herds. The mares would be selected from HMAs with similar topography and climatic extremes. This action would mitigate the risks associated with managing a herd size of less than 150 horses. Existing herd allelic diversity would be strengthened by increasing the number of contributing adults in the herd. This would be accomplished during gather activities through manipulation of the herd sex ratio. Impacts to the herd and to individual horses resulting from capture, holding, transportation and release back into the HA would be the same as those identified in alternative C. The impacts associated with age selective removals would be the same as those discussed in Alternative C.	removals would be the same as those discussed in Alternative C.	removals would be the same as those discussed in Alternative C.

Resource	Alternative A	Alternative B	Alternative C	Alternative E	Alternative F	Alternative G
Wild Horses (Continued)			in herd demographic shifts favoring older horses. These impacts are not typically adverse to a population unless the herd becomes composed of a preponderance of animals that are past their breeding age and therefore susceptible to mortality through natural causes. Older animals are often more desirable in that they are more biologically fit, reproductively viable, and more capable of enduring stresses associated with traumatic natural and artificial events. Long term impacts are those associated with to herd demographics are more serious and lasting and can result in skewed age structure and sex ratio in a herd.			
Rangeland Management	9,080 AUMs would continue to be allocated to livestock within the herd area. No changes in the permitted use for the grazing. Current grazing management plans would remain non-functional until horses are removed. Under this alternative, the permittee retains responsibility for range improvements. Additional 20% cost to maintain range improvements in the Texas Mountain area would continue until horses are completely removed.	Same as Alternative A, except that AUMs allocated to livestock would be reduced to 6,947 AUMs. Permitted use of Bull Draw Allotment would increase from 187 AUMs to 415 AUMs. Permitted use of Twin Buttes Allotment would decrease from approximately 8,665 AUMs to 6,532 AUMs. The current allotment management plan would remain valid.	Livestock permitted use within the herd area would be reduced from 9,080 AUMs to 6,299 AUMs. Horses would be allocated 648 AUMs. The Bull Draw allotment's permitted use would increase from 187 AUMs to 415 AUMs. The Twin Buttes portion of the herd area would be reduced to 5,884 AUMs. The current allotment management plan would need to be revised to reflect the retention of horses. Expected impacts include localized overgrazing, maintenance of sub-optimal forage resources	Livestock permitted use within the herd area would be reduced from 9,080 AUMs to 4,325 AUMs. Horses would be allocated 2,232 AUMs. The Bull Draw allotment's permitted use would increase from 187 AUMs to 232 AUMs (210 AUMs/14horses on Bull Draw). The Twin Buttes allotment would be reduced to 4,510 AUMs. Until such time as horses are properly distributed, the Texas Creek pasture would not be usable to livestock except for moving between summer and winter ranges. The	Livestock permitted use within the herd area would be reduced to 4,712 AUMs. Horses would be allocated 2,232 AUMs. The Bull Draw allotment's permitted use would increase from 187 AUMs to 415 AUMs. The Twin Buttes portion of the herd area would be reduced to 4,300 AUMs. Within the East and West Texas creek pastures livestock would be permitted to use 255 of the 2487 AUMs. The inability to use Texas Mountain would require livestock to remain on the winter ranges until the	6,947 AUMs would be allocated to horses. There would be No permitted livestock use on the Bull Draw Allotment, leaving the grazing permittee with the East Douglas Creek Allotment for their livestock operation. This would be a loss of 19% of the total permitted use and 60% of the winter range. The Twin Buttes allotment would loose all winter range and most of the spring/fall ranges. This would be a loss of 79% of the permitted use.

Resource	Alternative A	Alternative B	Alternative C	Alternative E	Alternative F	Alternative G
Rangeland Management (Continued)			and direct conflict between horses and cattle, resulting in displacement of cattle. Use of the Texas Mountain area is critical to the livestock operation. Current horse/livestock conflicts would decrease due to the reduced wild horse population. The permittee would retain responsibility for range improvements. In the Texas Mountain area, the 20% increased cost to maintain range improvements would continue.	current allotment management plan would need to be revised to reflect the retention of horses.	middle of June, preventing growing season rest. The result would be degradation in rangeland resources, likely requiring reductions in permitted use. The current allotment management plan would require revision to reflect the retention of horses.	
Vegetation	On those areas where wild horses concentrate, and year-long grazing occurs, vegetation conditions would continue to decline, as would production. Because of the limited forage resources available, wild horses will increase their range. An additional 1,200 acres of range are at risk until wild horses are completely removed. Management of noxious weeds by the BLM, County and Grazing Permittees would continue. Cheatgrass infestations would continue on existing areas, and would expand as horses extend their range until their removal.	Removal of the continuous, year-long grazing by horses would aid in the reestablishment of healthy, productive plant communities on 1,700 acres. Cattle management through the Twin Buttes Allotment Management Plan would allow forage species the opportunity to meet physiological requirements for growth, reproduction and carbohydrate storage. On several of the degraded plant communities, progression to the climax community is expected, but would take 15 years or longer.	Competition between livestock and horses for forage and water sources would continue. Season long grazing would continue on the preferred wild horse ranges, and current vegetation conditions rated as poor would continue with no improvement expected. Some expansion of degraded rangelands is expected which would further decrease forage production. Noxious weed and cheatgrass management would be the same as described under Alternative A.	Fencing out of the WSA would remove 7,611 acres of important wild horse summer range. This would be a forage loss of 359 AUMs. Until horse distribution changes, horse use would concentrate within the Texas Mountain area. Horse use would average approximately 76% of the available AUMs. Horse use would be season long and widespread degradation in rangeland conditions would be expected. Key forage areas consisting of Texas Creek, Texas Mountain, and the Pinyon/Juniper chainings would be especially hard hit. Noxious weeds are expected to spread in the Texas Mountain area due to less interest by the Grazing Permittees, Cheatgrass infested ranges would increase until horse distribution	Horses would be limited to the area around Texas Mountain. Horses would use approximately71% of the available AUMs in this area. Horse use would be season long and widespread degradation in rangeland conditions would be expected. Key forage areas consisting of Texas Creek, Texas Mountain, and the Pinyon/Juniper chainings would be especially hard hit. Vegetation conditions are expected to decline on these areas with a resulting decrease in forage production. The inability to use the Texas Mountain area would require livestock to remain on the winter ranges until the middle of June, preventing growing season rest. The result would be degradation in rangeland resources. Within the Texas	Initially wild horses would concentrate on their preferred ranges, degrading these rangelands. As forage resources declined, horses would search out additional foraging areas, improving distribution. Horse distribution would also be improved by removal of horses from areas determined to be not meeting the standards for public land health. Widespread, season-long grazing would occur and the preferred plant species would be removed. Less palatable species would increase dominance. Cheatgrass would be expected to increase as well as other noxious weed species.

Resource	Alternative A	Alternative B	Alternative C	Alternative E	Alternative F	Alternative G
Vegetation (Continued)				After the corridor to the north is established wild horse distribution throughout the herd area would improve and impacts to vegetation would be lessened.	Mountain area the opportunity for introduction of noxious weeds and cheatgrass would be expected to increase	
Water Quality	Improving the rangeland conditions and vegetation cover by removing wild horses, and thus reducing some of the current yearlong grazing and depletion of vegetation, would have a positive affect on watershed stability and water quality. Oil and gas development would continue to impact water quality due to exposure of the soil to climatic elements resulting in erosion of sediment and salt, and piping or rill erosion.	Removal of horses and reduction in AUMs allocated to livestock would result in greater improvements to water quality than are expected from Alternative A.	The actual impacts to water quality from this alternative would be similar to alternative A: a vegetation deficit from season-long grazing would contribute to watershed degradation and increased overland runoff and sediment erosion thereby decreasing water quality in nearby drainages. Oil and gas lease stipulations, and associated conditions of approval for applications for development, would reduce potential for oil and gas impacts described under Alternative A.	Impacts from this alternative would be similar to Alternative C, but with more horses, the effects of not being able to move them out of over-grazed areas would increase. Fencing out Oil Spring Mountain would protect 2.1 miles of upper Missouri Creek and 2 miles of main stem Texas Creek, which would be advantageous to Evacuation Creek. However 19,100 acres of the Evacuation Creek drainage would still be available for use. Also, under this alternative, BLM would develop and maintain additional water sources for horses thereby taking some of the pressures off of the remaining drainage bottoms. The actual impacts to water quality caused by this vegetation deficit would be similar to what is listed in Alternative A. Oil and gas lease stipulations, and associated conditions of approval for applications for development, would reduce potential for oil and gas impacts described under Alternative A.	With this number of horses in a smaller area, it is expected they will concentrate in the uplands of Evacuation Creek. The actual impacts to water quality caused by this vegetation deficit would be similar to what is listed in Alternatives E and A. Oil and gas lease stipulations, and associated conditions of approval for applications for development, would reduce potential for oil and gas impacts described under Alternative A.	It is estimated that, with an increased number of horses, their distribution would expand. Evacuation and Douglas Creeks would be mostly impacted. Increasing horse numbers would degrade fragile watersheds, increase sediment and salt loads which in turn would degrade water quality. The actual impacts to water quality caused by this vegetation deficit would be similar to what is listed in alternative A, with a greater degree of resource degradation. Oil and gas lease stipulations, and associated conditions of approval for applications for development, would reduce potential for oil and gas impacts described under Alternative A.

Resource	Alternative A	Alternative B	Alternative C	Alternative E	Alternative F	Alternative G
Riparian Zones	Concentration of livestock in the bottoms of West Douglas Creek will continue to deter streambank improvement. Following removal of horses, livestock grazing use would decrease both in duration and intensity, along West Douglas Creek. This would be the result of increased ability to use upland water and forage resources. There would be an increase in herbaceous standing crop along stream banks, critical to capture of sediment and requisite to bank building and stability	Same as Alternative A following removal of the horses. Some improvement expected because of improved upland use and implementation of the grazing management program.	Same as Alternative A before removal of the horses.	Competition between horses and cattle would likely limit cattle to using the bottoms of West Douglas Creek. Competitions between horses would likely increase horse use of West and West Douglas Creeks. The impacts would be similar to those described in Alternative A, once horses become distributed throughout the herd area.	Competition between groups of horses for water is expected to force use of all water sources and increase use of West and West Douglas Creeks. This use would peak from mid-summer to late fall. Livestock would continue to use West and West Douglas Creeks in the spring and fall. There would be an increase in growing season use by horses over an above the seasonal use that is currently occurring. This change in seasonal use is expected to degrade riparian habitat.	Horses would have access to West, West Douglas and Main-stem of Douglas Creeks. There would be an increase in growing season use of riparian vegetation by horses, which is expected to degrade these sites. On the southern part of the herd area impacts are expected to be as described in Alternative F.
Soils	52,570 acres of fragile soils areas would be available for grazing. Until all wild horses are removed, overuse of rangelands would further deplete the vegetative cover, needed to protect soils from runoff and erosion. This could cause long-term watershed problems. Overgrazing in any watershed would cause soil compaction, reduce infiltration, and decrease watershed stability. When wild horses, depletion of vegetation would be reduced. This would have a positive affect on watershed stability and soil productivity. 8,783 acres would not meet the Public Land Health Standard due to yearlong grazing, until wild horses are removed.	Although the same acreage of fragile soils as described under Alternative A would be available for grazing, removal of wild horses and at the same time reducing the number of AUMs allocated to livestock would be even more advantageous to soil productivity and soil stability than under Alternative A. Year long grazing pressure would be eliminated which would allow for better vegetation cover and productive soils. All of the herd area would meet the Public Land Health Standard for Soils.	The same area of fragile soils would be available for grazing as under Alternatives A and B. However, The horses would be expected to stay within their preferred habitat. The upper tributaries of Evacuation Creek are in the preferred horse habitat. Currently there are two soil stabilization projects that have been implemented within the Evacuation Creek watershed to slow soil erosion, improve vegetation cover and help reduce salinity levels to the Colorado River Basin. Year round grazing by horses in this fragile watershed would be in direct conflict with the objectives of the soil stabilization projects. 8,748 acres would not meet the Public Land Health Standard due to season-long grazing.	This alternative would protect 6,150 acres of fragile soils from continued season long grazing, with 45,845 acres of fragile soils still available. Season long grazing would continue with no improvement in vegetation condition expected. 8706 acres would not meet the Public Land Health Standard for Soils due to season-long grazing.	Impacts would be the same as those described under Alternative C, but would be greater due to the increased wild horse population. The proposed fencing would protect 5200 acres of bottomlands and allow 3583 acres to not meet the Public Land Health Standard for Soils due to season-long grazing	The identified problems of vegetation health and soil productivity would perpetuate. With the great increase in the number and distribution of horses over other alternatives, the degree and size of the area degraded would expand. Season long grazing would continue with no improvement in vegetation condition expected. 8,748 acres would not meet the Public Land Health Standard for Soils due to season-long grazing

Resource	Alternative A	Alternative B	Alternative C	Alternative E	Alternative F	Alternative G
Wilderness & CWP Areas	Removal of wild horses would likely benefit native plant communities, thus increasing naturalness. Helicopter use during gather operations would impact solitude. However this impact would cease once all horses have been removed. Wild horses may add to the primitive recreation experience until they are removed. Adverse impacts to special features, such as archeological sites and diverse plant communities would likely decrease once wild horses are removed. With respect to CWP areas, the same impacts would be expected.	Same as Alternative A, except the decrease in AUMs would result in decreased impacts to special features from livestock grazing. With respect to CWP areas, the same impacts would be expected.	This alternative allows for the continued utilization of preferred habitat by wild horses which include approximately 20% of the Oil Springs Mountain WSA. Continued wild horse utilization would further a trend of decreased naturalness with the loss of natives flora and the decrease of native fauna due to competition with wild horses. Impacts to solitude, primitive recreation, and special features would be the same as described for Alternative A, except they would not cease in 2007. With respect to CWP areas, the same impacts would be expected.	Same as Alternative A, except impacts to solitude during gather operations would continue beyond 2007. With respect to CWP areas impacts suggested in Alternative C would be expected with the additional of the fence which would effectively dissect the CWP area from the existing WSA decreasing both natural ness and primitive and unconfined recreation opportunities.	Similar to Alternative C, except the proposed fence through the WSA would not comply with BLM's Interim Management Policy for WSAs. With respect to CWP areas impacts suggested in Alternative C would be expected	Same as Alternative F for both WSA and CWP.
Geology and Minerals	No impacts	No impacts	Increased drilling and operational costs (20% and 9% respectively) would result from CSU-9 (11,501 acres), CSU-10 (24,511 acres), TL-12 (24,319 acres), TL-13 (15,488 acres), and LN-1 (123,387 acres) on new leases. Additional cost would result primarily from the need to directionally drill in order to maximize production. Reduced well densities could potentially preclude the maximization of production. Oil and gas operations proposed on existing leases would be subject only to conditions of approval identified through site-specific reviews. These conditions of approval	Same as Alternative C, with addition of CSU-11 (8,937 acres), and additional acreage for application of CSU-10 (63,021 acres total).	Same as Alternative C	Same as Alternative C, with additional acreage for CSU-10 (63,021 total). Also, timing limitations would not apply under this alternative.

Resource	Alternative A	Alternative B	Alternative C	Alternative E	Alternative F	Alternative G
Geology and Minerals (Continued)			may include, access changes, gating, location moves, and timing limitations			
Land Status and Realty	No impacts	No impacts	Impacts would be limited to increased costs, if any, related to stipulations imposed to meet the objectives of this alternative. While these stipulations are specific to oil and gas operations, they would also be imposed on related right-of-way developments. Use of the designated corridors would not be affected. See Geology and Minerals section for affected acreages.	Same as C with additional acreage affected by CSU-10, and application of CSU-11.	Same as C with additional acreage affected by CSU-10.	Same as C with additional acreage affected by CSU-10. Also, timing limitations would not apply under this alternative.
Wildlife	Near-term removal of horses from the West Douglas herd area would dramatically reduce season-long grazing use from much of the Oil Spring/Texas Mountain complex that respectively supports 3 and 10 percent of the deer and elk summer habitats available in Game Management Unit (GMU) 21. It would also reduce collective ungulate grazing intensity by about 10% across nearly 10% of both the general deer winter ranges and elk severe winter ranges within the GMU. Big game summer use and fawning and calve-rearing habitats in the Oil Spring/Texas Mountain area are tied to a limited number of upland springs that also attract horse use throughout the growing	Improvements associated with the removal of horse use from the Oil Spring/Texas Mountain complex would be similar to that discussed in Alternative A, but beneficial advances in plant vigor and understory composition would be accelerated. Reductions in the number of cattle using the Twin Buttes Allotment would increase opportunities to modify both the intensity and duration of grazing use in traditional heavy use areas. This would allow improvements in the distribution, abundance, and quality of desirable herbaceous forage on an estimated 8,700 acres of bottomland habitats and moderate overall grazing use levels (about 28% reduction) across 30-40% of deer and elk winter	Big game habitat conditions would remain relatively static. Reductions in horse populations would, on average, reduce the cumulative June-August grazing load by about 30%. However, continued season-long grazing use patterns would likely persist in suppressing understory expression in summer range habitats, in the Oil Spring/Texas Mountain complex. Overall grazing use levels outside favored horse use areas may be somewhat comparable to Alternative B, but static trends at higher elevations may interfere with implementation of enhanced livestock grazing management on lower elevation rangelands. Growing season use of elk severe	Fencing horses out of the Oil Spring WSA would eliminate horse-related influences on about 5,200 acres of big game summer range. The remaining 5,700 acres of big game summer range, and 16,000 acres of surrounding big game winter range providing suitable summer range conditions for horses, would likely be occupied, at least in the short-term, at densities limited only by intraspecific tolerance and would be subjected to exaggerated growing season use. Because current levels of growing season use on Texas Mountain are inconsistent with the maintenance of well-developed herbaceous understories, it is inevitable that the utility of big game summer ranges on Texas	This management option would have affects on big game similar to the near-term under Alternative E, but with no opportunity for horses to disperse and establish a presence on extensive lower elevation ranges. Consequences of the proposed surface stipulations would be the same as under Alternative C. Grouse brood and nest use of shrubland types within the herd area would be foregone Future efforts at treating woody vegetation to enhance the distribution and extent of shrubland types as grouse brood habitat in the Texas Mountain area would be futile.	The strong prevalence of season long grazing effects (73%) would likely forego any semblance of summer range utility for big game within the herd area. In the long term, it is believed that winter range functions would also be seriously impaired from long duration growing season use. Impacts would subvert any potential to realize State-desired big game population objectives in GMU 21. Consequences of the proposed surface stipulations would be the same as under Alternative C. Impacts on grouse would be the same as those described under Alternative F.

Resource	Alternative A	Alternative B	Alternative C	Alternative E	Alternative F	Alternative G
Wildlife (Continued)	season. Horse removal would relieve about 2,000 acres of bottomlands and mixed shrub parks within 2 miles of these waters from impacts which reduce the prospects of deer or elk maintaining favorable nutritional status through the fawn or calf-rearing period. With removal of cattle from the Oil Spring/Texas Mountain area by early June, and without the continued influence of horses the vigor, abundance, and variety of preferred big game forages on these critical habitats is expected to improve. Removal of horses is expected to dramatically reduce the progressive decline of herbaceous cover on 2,400 acres of blue grouse nest and brood habitats and initiate long term improvements in plant vigor and ground cover density and height. Removal of horses would reduce cumulative ungulate grazing intensity, initiating long-term improving trends in herbaceous vigor and density and allowing for redevelopment of herbaceous understories during the non-game reproductive season in habitats subjected to season-long grazing by horses in the Oil	ranges in GMU 21. Alternative B would prompt improvements in understory character on grouse brood and nest ranges similar to those discussed in Alternative A, however, reductions in cattle use would tend to further reduce grazing use levels in May and early June, retaining and allowing increasingly effective development of nest and brood cover conditions. The effects of horse removal on nongame habitats and populations would be similar to Alternative A in substance, but concomitant 25% reductions in seasonal cattle use would accelerate the rate and degree of improvements to understory character by increasing periods of rest or moderating use levels.	winter ranges by horses would be reduced by about 60% relative to current levels of use. Application of CSU-9 would involve nearly one-third of the herd area's big game summer and severe winter ranges, representing 1-3% of those ranges available in GMU 21. This stipulation would have limited short-term efficacy in helping to maintain habitat integrity on leases held by production or within the WSA. In the longer term, this stipulation may help reinforce maintenance of about 1,000 acres of summer range habitat character within the WSA. The road density objective of 1.5 miles per square mile is consistent with that currently applied to big game critical habitats. TL 12/13 dates applied to key winter and summer horse habitats are similar to those established for important big game winter and summer range use. Seasonal horse stipulations would generally complement big game summer uses and would offer winter use protection on up to 13,000 acres of general big game winter range Conversely, because of disparities in seasonal range preference, summer timing limitations for horses that extend	Mountain would rapidly diminish, both in terms of big game acquiring sufficient nutrition and heightened levels of antagonistic displacement from areas with high horse densities. Because of horse domination of Texas Mountain, future efforts at treating woody vegetation to enhance the distribution and extent of herbaceous forage sources for big game summer use in the Texas Mountain area would be futile. The development of reliable waters on lower elevation ranges to accommodate modified livestock use would be exploited by dispersing bands of horses, thereby compounding inappropriate seasonal grazing use and further expanding sedentary season-long use of these arid ranges by bands of horses. High use areas would likely hold little value in supporting spring, winter, or fall big game forage use, except during the brief emergence of cheatgrass in early spring. Consequences of the proposed surface stipulations would be the same as under Alternative C. Removing horses from the WSA would eliminate horse-related influences	Overall nongame abundance would be suppressed on sites where spring through fall grazing occurs, and use would be largely relegated to those shrubland animals more tolerant of grazing use. Similar to Alternative E, nongame communities associated with the herd area's lower elevation shrublands would generally remain static, with populations responding to a slow accumulation of bottomland and basin habitats in declining condition from persistent growing season use by cattle.	Nongame communities associated with all shrubland and grassland communities within the herd area would be subjected to profound reductions in understory expression. Although pinyon-juniper associates would remain relatively unaffected under all previous alternatives, the scope of impacts associated with this alternative may have an adverse influence on the density of ground-nesting, insectivorous, granivorous, and raptorial species in these woodlands
Wildlife (Continued)						

Resource	Alternative A	Alternative B	Alternative C	Alternative E	Alternative F	Alternative G
Wildlife (Continued)	Spring/Texas Mountain area. Reducing the intensity of use and trampling effects in the 1 mile reach of West Douglas Creek would be expected to contribute to long-term improvements in channel and floodplain character that would favor expansion and improved continuity of woody and herbaceous riparian habitats for those birds and mammals associated with well developed riparian habitats.		onto big game winter range would work to exaggerate winter development activity on up to 21,600 acres of big game winter ranges that are either not protected or are provisionally protected by a winter range stipulation. By minimizing the installation of oil and gas facilities and promoting a degree of solitude, these favored horse use areas are expected to function at diminished capacity as big game seasonal habitats. Similarly, application of CSU-10 would likely have limited short-term application in limiting pad density on leases held by production or within the WSA. Although a ROD/RMP big game decision presently establishes a road density objective of 3 miles per square mile on all big game winter ranges, horse-related values may offer added impetus in implementing these objectives in the short-term. Forage compensation measures within Lease Notice 1 areas would be subject to applicable big game and grouse habitat objectives and management decisions, as well as riparian decisions. The lease notice calls for the potential development of	on 50% of suitable grouse brood and nest habitats within the herd area (1180 acres). These habitats would be expected to respond in the same manner as presented in Alternative B. Future efforts at treating woody vegetation to enhance the distribution and extent of shrubland types as grouse brood habitat in the Texas Mountain area would be futile. Similar to the discussion for Alternative B, removal of horses from the WSA would reduce breeding season use intensity by 70% and should result in strong redevelopment of herbaceous understories with subsequent increases in those insectivorous and ground-nesting birds and small mammals that prefer well developed understories and residuals. The remaining shrubland communities in the Texas Mountain area would be subjected to heavy grazing use May through September that would suppress herbaceous forage availability and cover density and height sufficient, it is thought, to depress current breeding densities of nongame birds and mammals. In a regional sense, habitat gains made within the Oil Spring WSA would partially offset declines in		

Resource	Alternative A	Alternative B	Alternative C	Alternative E	Alternative F	Alternative G
			additional waters which would likely increase the long-term availability and persistence of waters, many likely to involve big game winter ranges. This would expand the extent, duration, and intensity of grazing use by horses on herbaceous forage supplies and residual ground cover on these more arid sites. On those limited number of leases not held by production or in the event the WSA is released for multiple use, CSU-9 and 10 would help limit the extent and density of natural gas facilities that reduce the size and/or continuity of habitat patches. It is likely that the utility of grouse brood or nest habitat would remain static under this alternative. The reduction of herbaceous ground cover during the brood season would progress at a rate about triple that of Alternative B. Nongame bird and mammal habitat quality and populations would be expected to remain static.	population reductions in the vicinity of Texas Mountain. Nongame communities associated with the herd area's lower elevation shrublands would generally remain static, with populations responding to a slow accumulation of bottomland habitats in declining condition, prompted in part by the periodic need to prolong growing season use by cattle on these winter pastures (i.e., during high end of horse population cycles). The development of reliable waters to accommodate this use would be exploited by dispersing bands of horses. This would compound inappropriate seasonal grazing use and Increasing expression of annual, introduced, or grazing-tolerant species which fail to offer comparable persistence, structure, or production as substrate for invertebrate prey and/or supplemental cover for reproductive functions for nongame birds or mammals.		
Recreation	Opportunities for viewing wild horses in this herd area would be eliminated. Gather operations could adversely impact hunters' experiences.	Same as Alternative A	Opportunities for viewing wild horses and impacts to hunters would continue.	Same as Alternative C	Same as Alternative C	Opportunities for viewing wild horses would increase due to large herd size. Impacts to hunters would be greater due to longevity of gather.

Resource	Alternative A	Alternative B	Alternative C	Alternative E	Alternative F	Alternative G
Cultural Resources	Trampling, rubbing, and scratching on built cultural features such as wickiups or cabins from livestock and wild horses would continue to occur. These impacts would be more evident around water and in areas of thermal cover, such as within pinyon-juniper forests, where cultural site density is potentially high, and horses and livestock are expected to congregate. Impacts from wild horses would increase as herd population grows, and decrease as herd population is reduced after gathers. Impacts from horses would cease after total herd removal in 2007. There would also be continued potential for oil and gas development to impact cultural resources.	Same as Alternative A	Trampling, rubbing, and scratching on built cultural features such as wickiups or cabins from livestock and wild horses would continue to occur. These impacts would be more evident around water and in areas of thermal cover, such as within pinyon-juniper forests, where cultural site density is potentially high, and horses and livestock are expected to congregate. Wild horses and related impacts would be concentrated within the preferred habitat around Texas Mountain. Additional stipulations on new oil and gas leases would reduce potential impacts from oil and gas development.	Wild horse impacts would be similar to those described in Alternative C, except none would occur within the Oil Springs Mountain WSA. The increased AML range and presence of a permanent herd represents an increase in potential impacts to cultural resources from horses. Potential wild horse impacts to cultural sites in the northern and western potions of the herd area would increase. Reduced livestock grazing would reduce the potential for related impacts. Additional stipulations on new oil and gas leases would reduce potential impacts from oil and gas development.	Wild Horse impacts would be the similar to those described under E, except concentrated completely within the preferred habitat area. Livestock would be limited to the area north of the preferred habitat, where impacts would be similar to those described under Alternative A.	Wild Horse impacts would be similar to those described under Alternative C, but dramatically increased due to the larger AML. Wild horse impacts outside of the herd area would be eliminated due to the fences. Potential trampling of cultural sites during gather operations would be greater than other alternatives due to the larger number of horses to be gathered. Under this alternative all livestock impacts within the herd area would be totally eliminated. Additional stipulations on new oil and gas leases would reduce potential impacts from oil and gas development.
Paleontology	Impacts from wild horses would be similar to those from livestock grazing, and include trampling on horizontal or near horizontal surfaces where fossil bearing outcrops occur. On vertical faces of critical outcrops there is a potential impact from rubbing and scratching. Impacts from horses would cease after removal. Impact from other activities would continue.	Same as A	In those areas where the horses concentrate, trampling of fossils would continue to be severe with impacts increasing as the herd numbers increase and decreasing as the herd numbers decrease. Stipulations on new oil and gas leases could reduce development-related impacts.	Same as C, but the larger herd size would lead to increased potential for impacts. Wild horse impacts within the WSA would be eliminated.	Same as C, but the larger herd size would lead to increased potential for impacts. Wild horse impacts would be eliminated from the northern portion of the herd area. Livestock trailing within southern portion of the herd area has potential to damage fossils.	Same as C, but with the largest herd size this alternative would have greater potential for wild horse impacts than any other alternative. Livestock impacts to fossils would be eliminated. Any potential for wild horse impacts outside of the herd area would be eliminated.

Resource	Alternative A	Alternative B	Alternative C	Alternative E	Alternative F	Alternative G
Access and Transportation	No impact	No impact	Because the existing road density in the key and preferred habitat areas is already low, neither the surface disturbance stipulations nor the required conditions of approval will actually impact current access or transportation. Road closures will likely be minimal, if necessary at all. Travel management planning and density limitation will apply only to future development.	Same as Alternative C in the southern portion of the herd area. Surface disturbance stipulations and conditions of approval limiting road density would apply to an additional 47, 447 acres within the central and northern portions of the herd area. A travel management plan, road closure, and an RMP amendment would be necessary to achieve the road densities called for in the migration corridor.	Same as Alternative C	Same as Alternative E, there would be no migration corridor. Therefore, no travel management planning, road closures, or RMP amendment would be necessary to achieve the stipulated road densities for the migration corridor.
Forest Management	No impact	No impact	Forest harvesting may affect horse distribution. CSU-1 would remove approximately 800 acres of suitable pinyon/juniper in the Texas Mountain area from harvest	Same as Alternative C, except CSU-3 would prevent harvesting operations within the migration corridor.	Same as Alternative C	Same as Alternative E with the exception that horse numbers will be significantly higher and the opportunity for short term displacement during harvesting activities will be greater.
Social & Economic	Value of Forage Allocated to cattle: $12,984 Market Value of Forage Allocated to Cattle: $90,800 Job Loss: 0 BLM Costs: Herd Maintenance (Next 20 years): $499,000 No direct range improvement costs. Total Direct Costs/Year: 3 Years=$166,000 20 years=$25,000	Value of Forage Allocated to Cattle: $9,934 Market Value of Forage Allocated to Cattle: $69470 Job Loss: 0 BLM Costs: Herd Maintenance (Next 20 years): $499,000 No direct range improvement costs. Total Direct Costs/Year: 3 Years=$166,000 20 years=$25,000	Value of Forage Allocated to Cattle: $9,007 Market Value of Forage Allocated to Cattle: $62990 Job Loss: 1 BLM Costs: Herd Maintenance (Next 20 years): $806,000 No direct range improvement costs. Total Direct Costs/Year: 20 Years= $40,300	Value of Forage Allocated to Cattle: $6,738 Market Value of Forage Allocated to Cattle: $43,250 Job Loss: 1 Fencing Jobs Created: 2 BLM Costs: Herd Maintenance (Next 20 years): $1,215,000 Fence Construction: $94,000. Range Maintenance: $3,800/year Total Direct Cost/Year: 20 Years= $69,250	Value of Forage Allocated to Cattle: $6,738 Market Value of Forage Allocated to Cattle $43,250 Job Loss: 1 Fencing Jobs Created:7.5 BLM Costs: Herd Maintenance (Next 20 years): $1,215,000 Fence Construction: $320,000 Range Maintenance: $7,000/year Total Direct Cost/Year: 20 Years= $83,750	Value of Forage Allocated to Cattle: $0 Market Value of Forage Allocated to Cattle:$0 Job Loss: 3 Fencing Jobs Created:7.5 BLM Costs: Herd Maintenance (Next 20 years): $2062000 Fence Construction: $325,000 Well Rebuild: $30,000 Range Maintenance: $14,200 Total Direct Cost/Year: 20 Years= $135,850

Section 1: Introduction

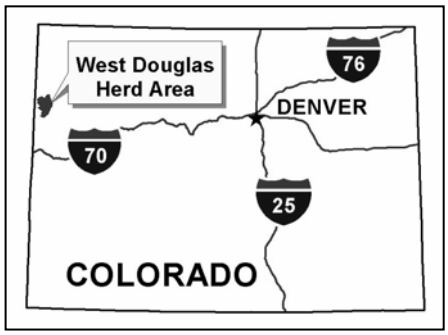
1.1 Purpose and Need

The purpose of the West Douglas Herd Area Land Use Plan Amendment is to identify whether it is feasible at this time to manage wild horses in the West Douglas Herd Area of the White River Resource Area, while protecting resource values, providing for multiple uses, and improving the health of public lands. The Bureau of Land Management (BLM) initiated this planning process to determine whether it should amend decisions in its Resource Management Plan (RMP) concerning management of wild horses in the West Douglas Herd Area. This process will allow BLM, with integrated public involvement, to develop and conduct detailed analysis of a full range of alternatives specifically focused on wild horses and other resources within the West Douglas Herd Area. BLM has determined that such detail and focus may not have been sufficiently addressed and documented in the current RMP, which has a resource-area-wide scope.

1.2 Where is the West Douglas Herd Area?

The West Douglas Herd Area is located in Northwestern Colorado (see Map 1-1), southwest of the town of Rangely (see Map 1-2). It is approximately 50 miles north of Grand Junction.

Map 1-1: Location of the West Douglas Herd Area



1.3 Geographic Scope of the Planning Area

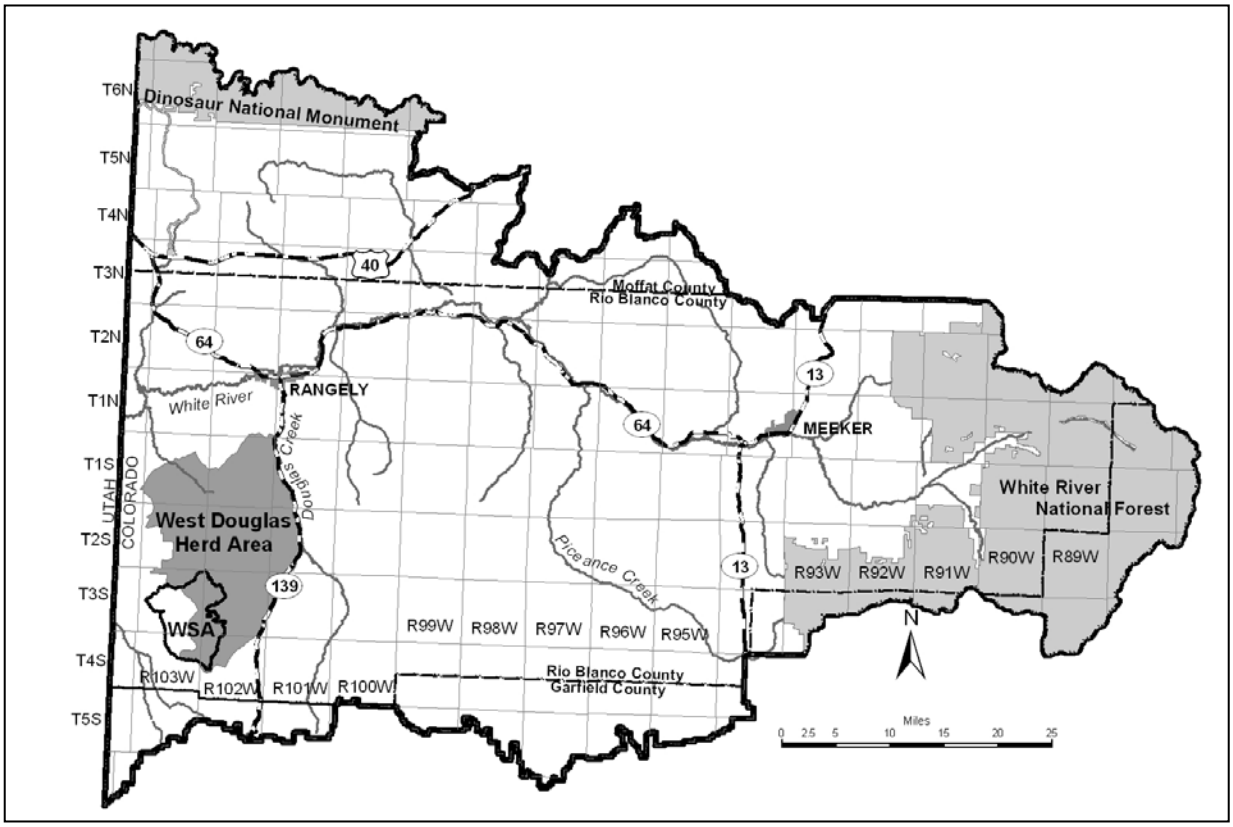
The planning area is the West Douglas Herd Area, whose boundaries are described and depicted in the White River Record of Decision and Approved Resource Management Plan (ROD/RMP), approved July 1997. The Herd Area encompasses 123,387 acres of federal land managed by BLM, and 4,754 acres of private land All but 15 acres of the private land are split estate on which BLM manages the federal mineral rights. All of the planning area is within the White River Resource Area, and within Rio Blanco County, Colorado (see Map 1-2). Note that, as it appears on Map 1-2, the southwestern boundary of the herd area bisects the Oil Springs Mountain Wilderness Study Area (WSA).

1.4 Background

The current White River ROD/RMP calls for the removal of all horses from the West Douglas Herd Area after ten years. During the interim (0-10 years) the ROD/RMP directs management of a herd of 0 to 50 horses in the Herd Area. The ROD/RMP was approved in July 1997. Therefore, unless the ROD/RMP is amended, BLM must remove all wild horses from the herd area by July 2007. Prior to this date, BLM must maintain a herd of 50 or fewer horses in the herd area.

In the Draft Resource Management Plan/Draft Environmental Impact Statement (DRMP/DEIS), which the White River Field Office completed in October 1994, three (of four) alternatives proposed removal of all wild horses from the West Douglas Herd Area. Only one alternative of the Draft called for continued management of wild horses in the Herd Area. Several public comments on the DRMP/DEIS addressed concerns about proposed management of wild horses and the amount of forage allocated to livestock grazing and wild horses. One comment specifically protested any herd area being zeroed out. The BLM's response to that comment explained that the proposal to remove wild horses from the West Douglas Herd Area is based on the issue of manageability. Lacking physical boundaries on the southern and western boundaries of the herd area which would prevent their movement, wild horses have dispersed to areas that they did not inhabit at the passage of the 1971 Wild, Free Roaming Horses and

Map 1-2: Location of the West Douglas Herd Area within the White River Resource Area



Burros Act. The Wild and Free Roaming Horses and Burros Act (16 U.S.C.A 1331) specifies that "they [wild horses and burros] are to be considered in the area where presently found [at the time of passage of the Act] as an integral part of the natural system of the public lands." The Code of Federal Regulations (43 CFR 4710.4) states that "Management of wild horses and burros shall be undertaken with the objective of limiting the animals' distribution to herd areas." The Code (43 CFR 4700.05) further defines a herd area as "the geographic area identified as having been used by a herd as its habitat in 1971."

In the Proposed Resource Management Plan/Final EIS (PRMP/FEIS) preferred alternative called for removal of wild horses from the herd area. The American Mustang and Burro Association formally protested this wild horse decision, claiming "management of the West Douglas Herd Area for zero horses violated WHBA." The BLM response to this protest stated that BLM "Followed applicable planning procedures, laws, regulations, and policies and considered all relevant resource considerations and public input in developing the Proposed White River RMP." The response further conveyed that the "Interior Board of Land Appeals (IBLA) does not hear appeals from a decision by the Director of the BLM on protests regarding RMPs. Any person adversely affected by a decision of a BLM official to implement some portion of a RMP may appeal such action to Interior Board of Land Appeals at the time the action is proposed for implementation."

In January 1997, the BLM completed an Allotment Management Plan (AMP) for the Twin Buttes Allotment. The AMP was based on grazing and wild horse management decisions in PRMP/FEIS which were later carried forward in the White River ROD/RMP. The majority of the West Douglas Herd Area is within the area addressed by this AMP. The American Mustang and Burro Association, in accordance with the requirements outlined in the response to their protest to the PRMP, appealed the decision to implement this AMP. In their appeal, the American Mustang and Burros Association stated that allocation of forage for livestock grazing was the "impetus for zeroing out wild horses from the West Douglas Herd

Area" in violation of the Wild and Free Roaming Horses and Burros Act. The Association requested a stay on implementation of the AMP. This request was denied by the Interior Board of Land Appeals.

The BLM's decision to remove all wild horses from the West Douglas Herd Area was based on a series of similar decisions in White River Resource Area planning documents. The first of these was the White River Management Framework Plan (MFP), which was completed in 1975. This document was the first to call for removal of horses west of Douglas Creek because oil and gas developments are causing horses to disperse into areas where they did not exist prior to 1971." The MFP was updated in 1980. The update reiterated the 1975 wild horse decisions. In 1981, BLM completed the White River Resource Area Grazing Management FEIS. This document again stated that the "wild horse population will be removed from the area west of Douglas Creek" for the same reason identified in the MFP. Of note is that none of the planning documents, including the current ROD/RMP, established any relationship between removal of wild horses from the West Douglas Herd Area and forage allocation.

In 1999, the Colorado State BLM Office directed the White River Field Office to review the decision in the 1997 White River ROD/RMP regarding management of wild horses in West Douglas. The State Office was concerned that the ROD/RMP and other planning documents might not adequately justify the decision. In response, this RMP amendment planning process will be specific to the issues of the West Douglas Herd Area and will allow for an in-depth analysis of alternatives focused just on this area and will be open to public participation.

1.5 Issues and Concerns

BLM identified the issues and concerns listed below from internal scoping, comments we received during three public scoping meetings, and comment letters we received from interested parties. Details about the issues and the public scoping process can be found in the Scoping Report which is available at the White River Field Office, or online at http://www.co.blm.gov/wrra/wdha.htm.

- **Range of Wild Horse Management Options and Statutory Requirements.** Have all reasonable management options been considered and analyzed? Do management alternatives meet statutory requirements?

- **Wilderness.** Can wild horse management activities and wilderness values within Oil Spring Mountain Wilderness Study Area co-exist? Additionally, how will wild horse management affect Conservationist Wilderness Proposal areas?

- **Oil and Gas Development.** Will there be additional stipulations for oil and gas development? Will oil and gas development cause wild horses to disperse into areas outside of the herd area?

- **Forage Allocation.** What proportions of available forage should be allocated to livestock, wild horses, and wildlife?

- **Wild Horse Distribution Outside of Herd Area.** Over the past 30 years, wild horses in the West Douglas Herd area have tended to roam to the south and southwest, outside the boundaries of the herd area. How can this be prevented along the length of the southwest boundary inside of Oil Spring Mountain Wilderness Study Area?

- **Conflicts with Hunting.** Helicopter use during gather operations during hunting season could scare away large game. In addition, this issue includes all potential impacts of the wild horse herd on big game and hunting.

- **Implications for Watersheds.** Will wild horses cause damage to watersheds? What will be the impact of horses on limited watering sites that are critical to livestock and wildlife?

Public scoping comments revealed an additional concern that existing water sources may not be enough to support, or encourage proper distribution of a wild horse herd.

- **Protection of Cultural Resources.** Will management of wild horses impact the numerous cultural sites and artifacts found throughout the West Douglas Planning Area?

- **Socio-Economics.** Will the management of horses affect social or economic status of the region that has an economy based largely on oil and gas development, hunting, and livestock?

- **Fiscal Feasibility.** Can BLM manage wild horses in the West Douglas Herd Area given current and future fiscal resources? Public scoping helped identify an additional concern about the capability of BLM's National Wild Horse and Burro Adoption Program to remove excess horses from a new herd management area in the long term.

- **Public Need for Wild Horses.** This is a new issue identified from public scoping comments. Several comments indicated a concern that, given the existing and future multiple uses on public lands in the planning area, and considering the nearby Piceance-East Douglas Herd Management Area, is there a public need for an additional herd management area? Other comments identified some reasons to consider a new herd management area, such as historical relationship between the people of the area and wild horses, and the potential for genetic Spanish heritage within the West Douglas herd.

- **Herd Viability.** Does the West Douglas Wild Horse Herd possess the genetic variability necessary to maintain a viable, self-sustaining population in the long term? What actions can be taken to increase herd genetic variability?

- **Health and Safety.** Due to the rough terrain within the planning area, there is concern over safety during gather operations. Safety is a greater concern during the use of alternative gather methods.

- **Rangeland Health.** The Wild and Free Roaming Horses and Burros Act requires BLM to maintain a thriving ecological balance when managing wild horses. Any management plan that BLM develops for wild horses must include methods to prevent concentrations of wild horses at locations vulnerable to vegetative damage, as well as a plan to monitor conditions to identify when damage is occurring.

1.6 Planning Criteria

The Code of Federal Regulations (CFR) requires development of criteria during land use planning to "ensure that it is tailored to the issues previously identified and to ensure that unnecessary data collection and analyses are avoided" (43 CFR 1610.4-2). BLM developed the planning criteria listed below for this planning process. These criteria were made available for review during public scoping. More details concerning the criteria can be found in the Scoping Report which is available at the White River Field Office, or online at http://www.co.blm.gov/wrra/wdha.htm.

- The planning area is defined as the public and private lands within, or immediately adjacent to the West Douglas Herd Area as specified in the White River Resource Management Plan (July 1997). See the Geographic Scope of the Planning Area in Paragraph 1.3 above.

- All alternatives must comply with the Wild and Free Roaming Horses and Burros Act and 43 CFR Part 4700.

- Management of wild horses will not cause excessive harm to the thriving natural ecological balance (TNEB). Implementing this RMP amendment will result in the planning area meeting public land health standards or moving toward meeting the standards from the current situation.

- Data analysis will include an evaluation of herd genetic viability.

- BLM must be able to accomplish the actions required by the plan amendment utilizing current and foreseeable future fiscal and human resources.

- The planning process will determine forage allocation within the planning area for wild horses, livestock, and wildlife.

- The Environmental Assessment will include an analysis of gather techniques that may be used to gather wild horses from within or adjacent to the herd area in the future.

- Current vegetative assessments for the planning area are valid and no additional vegetative inventory will be necessary.

- The Environmental Assessment will include economic and fiscal impact analyses.

- Decisions in the White River Resource Management Plan and BLM Interim Management Policy regarding management of the Oil Springs Mountain Wilderness Study Area for wilderness character and values remain applicable. BLM will not include a review of wilderness potential for Conservationists' Wilderness Proposal (CWP) areas during this planning process. However, the environmental assessment will include analysis of the impacts of each alternative on wilderness character and potential of CWP areas.

- The Oil and Gas Reasonable Foreseeable Development scenario found in the 1997 White River Proposed Resource Management Plan remains valid and will be used for analysis.

1.7 Conformance with Land Use Plan

The BLM Colorado State Director approved the White River Record of Decision and Approved Resource Management Plan (ROD/RMP) on July 1, 1997. The ROD/RMP describes general decisions for management of 1.5 million acres of federal land, and 365,000 acres of split mineral estate within the White River Resource Area. The ROD/RMP also specifies management decisions for wild horses in the West Douglas Herd Area described in Alternative A (Continue Current Management) of this EA. If any other alternative is selected, it will become an amendment to the RMP, and will require a Record of Decision specific to the amendment.

1.8 Relationship to Statutes, Regulations, and Other Plans

The Federal Land Policy and Management Act (FLPMA) of 1976: FLPMA directs that the Public Lands be managed on the basis of multiple use.

Wild, Free Roaming Horses and Burros Act of 1971 (as amended by FLPMA of 1976 and the Public Rangelands Improvement Act of 1978): This act provides direction for BLM to manage wild horses and recognizes that [wild horses] contribute to the life forms within the Nation and enrich the lives of the American people; and that these horses…are fast disappearing from the American scene."

43 CFR 4700-4710: The purpose of these regulations is to "implement the laws relating to the protection, management, and control of wild horses and burros under the administration of the Bureau of Land Management."

43 CFR 3101.1-2: The lessee of an existing oil and gas lease "shall have the right to use so much of the leased lands as is necessary to explore for, drill for, mine, extract, remove and dispose of all the leased resource in a leasehold subject to: Stipulations attached to the lease; restrictions deriving from specific nondiscretionary statutes; and such reasonable measures as may be required by the authorized officer to minimize adverse impacts to other resource values, land uses or users not addressed in the lease stipulations at the time operations are proposed. To the extent consistent with lease rights granted, such reasonable measures may include, but are not limited to, modification of sitting or design of facilities, timing of operations, and specifications of interim and final reclamation measures. At a minimum, measures shall be deemed consistent with lease rights granted provided that they do not: require relocation of proposed operations by more than 200 meters; require that operations be sited off the leasehold; or prohibit new surface disturbing operations for a period in excess of 60 days in any lease year."

Strategic Plan for Management of Wild Horses and Burros on Public Lands (1992), and the Strategic Plan for the Management of Wild Horses and Burros in Colorado (1993): BLM will follow program policy and guidance included in the 1992 "Strategic Plan For Management of Wild Horses and Burros on Public Lands", and in the 1993 "Strategic Plan for the Management of Wild Horses and Burros in Colorado."

1.9 National Environmental Policy Act (NEPA) Compliance

This EA will serve as the NEPA document for the actions presented in this Plan Amendment. At the time projects are implemented, BLM will assess whether further NEPA analysis is necessary. BLM will prepare supplemental NEPA documents if this EA does not adequately analyze the impacts of future implementation actions.

Section 2: Description of Alternatives

2.1 General: The BLM White River Field Office staff developed eight alternatives to achieve the purpose and need. These alternatives also address specific issues and concerns that were identified in Section 1. Paragraph 2.3 describes the six alternatives that have been analyzed in detail. Two of the eight alternatives were eliminated from further analysis. Paragraph 2.4 describes the eliminated alternatives, and the rationale for their elimination.

2.2 Common to All Alternatives: The following items are common to all alternatives:

- For all alternatives except Alternative A, BLM conducted a reassessment of the rangeland conditions and productivity that resulted in a decrease in the estimated amount of available forage within the herd area from 9080 to 6947 animal unit months (AUMs). See Section 3, Paragraph 3.3 for more detail.
- Wildlife forage allocations are the same for each alternative and are based on Colorado Division of Wildlife established goals.
- New surface use stipulations will only apply to new mineral leases. Stipulations on existing mineral leases remain unchanged and in effect. However, this does not preclude BLM from imposing reasonable measures through terms and conditions to minimize adverse impacts to wild horses, other resource values, land uses, or users, not addressed in lease stipulations, in accordance with 43 CFR 3101.1-2.
- BLM analyzed fertility control (immunocontraception) combined with removals as a means to maintain the appropriate management level for each alternative. The use of fertility control did not result in a notable decrease in population growth when compared with removals only. Refer to Appendix C for a more detailed discussion.

2.3 Variables Among Alternatives: There are eight variables which differentiate the alternatives:

- Forage Allocation to Wild Horses and Livestock. Forage allocations are measured and authorized in animal unit months (AUMs). An animal unit month is the amount of forage required by a cow, for one month. Different animals require a different amount of forage than the cow standard of one. For example, five sheep are often considered to be the forage use equivalent of one cow, so a single sheep for one month would use 0.2 AUMs. Wild horse use analysis in this document employs a conversion rate of 1.25 AUMS for wild horses, based on recognition of wild horse year long use and that a mature horse consumes approximately 1.25 AUMS for each 1 AUM consumed by cattle. (NTIS 1980). In the case of livestock and wild horses nursing offspring (under 6 months of age) is included in the allocation attributed to the mother.
- Wild Horse Population. The wild horse population identified in each of the alternatives is referred to as the appropriate management level (AML). The AML refers to the number of horses over six months of age (excluding foals). The AML is specified as a numerical range and is directly related to forage allocation and a four year gather sequence. When the population grows to the maximum established level (high end of the AML), BLM removes the wild horses down to the minimum established level (low end of the AML range). Each AML range is based on the premise of an average 20% annual herd increase. The population increases with no, or minimal, human interference during the 4 year time span between a gather to the minimum AML range and natural herd increase to the high end, or maximum AML range.
- The number of horses that are gathered, and removed during each gather will be based on actual population size at the time of the gather, as determined during a pre-gather helicopter census, and

the number tat must be removed in order to maintain a thriving, natural ecological balance of the range.

- The Wild Free Roaming Horses and Burros Act specifies that wild horse gather operations will be conducted to "restore a thriving natural ecological balance" when an "overpopulation exists." This plan amendment addresses longstanding concerns; much information has been generated in order to address previous disputes. Because of this, the BLM is confident that existing databases are sufficient to accurately project the cause and effect relationships associated with alternative stocking rates. The specified AML range would be used to plan and allocate other users in the multiple use spectrum. However, in alternatives where a range is specified for long term management, current information would be collected and used when planning gather operations, and the AML would be adjusted accordingly. The BLM does not propose to gather horses on a fixed schedule without documenting that an "overpopulation exists," and that there is a need to "restore a thriving natural ecological balance."

- Acres of Public Land Allocated to Wild Horse Management. In some of the alternatives, BLM would manage horses within a portion of the herd area. In others, BLM would manage horses throughout the entire herd area.

- Fencing. Several of the alternatives would require that BLM build and maintain fences to control distribution of wild horse.

- New Oil and Gas Stipulations. Several of the alternatives include surface use stipulations for new mineral leasing intended to protect key wild horse habitats and functions. None of the stipulations outlined below are blanket stipulations. Rather, each application will be weighed and specific stipulations will be imposed only when and if deemed necessary for the individual activity. Additional conditions of approval may be imposed at the time an application to drill is submitted for existing and new leases, within limits specified in Federal Regulations. Potential oil and gas lease stipulations are outlined in detail in Appendix A, and displayed in Maps H-1 and H-2 in Appendix H. Below is a brief description of the stipulations referred to in the alternative descriptions. The numeric identifications are based on existing stipulations that already part of the White River ROD/RMP:

  - **Controlled Surface Use 9 (CSU-9): Key Wild Horse Habitat.** Only short-term development activity, such as pipeline and powerline installation, which does not require continuous maintenance, will be allowed. The goal is to maintain habitat needs of forage, water and cover within key wild horse habitat.

  - **Controlled Surface Use 10 (CSU-10): Preferred Wild Horse Habitat.** Density of development activity will be limited. Well pads will be limited to four sites per section (four sites per square mile) with an allowance for multiple wells per pad. Road density would be limited to 1.5 miles of road per square mile. The goal is to maintain habitat quality and wild horse utility by limiting development density and human activities.

  - **Controlled Surface Use 11 (CSU-11): Wild Horse Migration Corridor.** Density of development activity will be limited. Well pads will be limited to two sites per section (two sites per square mile) with an allowance for multiple wells per pad. Road density will be limited to 3 miles of road per square mile. Loop roads will not be allowed. Well access roads will be gated to deter unnecessary motorized use. The goal is to develop and maintain a functional wild horse migration corridor through which wild horses would be able to move between the current occupied horse range and the usable ranges to the north.

  - **Timing Limitation 12 (TL-12): Wild Horse Summer Range**. Activities which displace horses from important summer ranges may only occur between September 1 and May 30. The goal is to maintain usability of key horse habitat by preventing activities which would act to displace the horses during the season of use.

  - **Timing Limitation 13 (TL-13): Wild Horse Winter Range.** Activities which displace horses from important winter ranges may only occur between May1 and November 15. The goal is

to maintain usability of key horse habitat by preventing activities which would act to displace the horses during the season of use.

- **Lease Notice 1 (LN-1): Wild Horse Habitat.** This lease parcel encompasses a portion of a wild horse herd management area. In order to protect wild horses within this area, intensive development activities may be delayed for a specified 60 day period within the spring foaling period between March 1 and June 15. The lessee may also be required to perform special conservation measures within this area including: 1) Habitat improvement projects in adjacent areas if development displaces wild horses from critical habitat; 2) Disturbed watering areas would be replaced with an equal source of water, having equal utility; and 3) Activity/improvements would provide for unrestricted movement of wild horses between summer and winter ranges.

- Genetic Enhancement. Several of the alternatives propose manipulation of the herd age and /or sex ratio and the introduction of wild horses from other herds as a means to increase genetic variability. A discussion of herd genetics can be found in Appendix D.

2.4 Alternative Descriptions. The following descriptions include both proposed resource management plan (RMP) and proposed implementation decisions. RMP decisions provide management direction and guide future actions. Implementation decisions address on-the-ground actions needed to accomplish RMP decisions. The portions of the alternative descriptions that would become RMP decisions are italicized. The remainder of the alternative descriptions would become implementation decisions supporting the italicized RMP decisions.

2.4.1 Alternative A (Continue Current Situation): *As described in current RMP decisions, the wild horse population would be limited to a range between 0 and 50 animals. BLM would remove all wild horses from the Herd Area and from areas where horses have relocated outside the Herd Area by 2007. BLM is currently managing a herd between 60 and 151 horses.* Alternative methods for gathering horses (see Appendix B), such as horse roping/hazing; net gunning, and tranquilizer darting would be required in order to gather all wild horses. *The current RMP further specifies allocation of up to 750 AUMs of forage until removal is completed.* There would be no need for long-term forage allocation for wild horses. The current allocation to livestock within the herd area is approximately 9080 animal unit months (AUMs). BLM would construct no new fences. The permittee would retain maintenance responsibility for existing range improvements. All other resources would be managed in accordance with the existing situation. *There would be no new stipulations for oil and gas development.*

2.4.2 Alternative B (Remove All Wild Horses): *BLM would remove all wild horses from the herd area as soon as possible.* Alternative methods for gathering horses (see Appendix B), such as horse roping/hazing; net gunning, and tranquilizer darting would be required in order to gather all the horses. *In addition to the accelerated removal timeline, this alternative differs from Alternative A in that BLM would modify livestock forage allocation by pasture. The total forage allocation estimate within the Herd Area would be 6947 AUMs, to reflect current conditions.* This would be a 20% reduction from current total use. Specifically, allocation within the Twin Buttes Allotment would decrease from approximately 8,665 to 6,532 AUMs. However, allocation within the Bull Draw Allotment would increase from 187 to 415 AUMs. BLM would build no new fences. The permittee would retain maintenance responsibility for range improvements. All other resources would be managed in accordance with the existing situation. *There would be no new stipulations for oil and gas development.*

2.4.3 Alternative C (Mid-Sized Herd in unfenced Preferred Habitat): *Wild horses would be managed within the Texas Mountain preferred habitat with an initial appropriate management level (AML) range between 29 and 60 head. The AML could be adjusted at a later date based on monitoring of range conditions.* This management range would be based on a four year gather schedule. Every fourth year, when the population had increased to approximately 60 horses, BLM would lower the herd to 29 horses

using standard gather techniques (see Appendix B). Periodic introduction of wild horses into the herd from other HMAs would be used to increase herd genetic variability (see Appendix D). To increase the number of contributing adults with the population, the herd ratio of male and female animals would be adjusted to assure that studs composed at least 50% and possibly as much as 60% of the herd (Coates-Markle, 2002). *The herd would primarily be managed within their preferred habitat surrounding Texas Mountain (see Map 2-1). A yearly average of 648 AUMs of the estimated 2179 available in the Texas Mountain area would be allocated to wild horses. Livestock would continue to use the area with reductions based on horse numbers. Available forage (6,299 AUMs) not allocated to wild horses would be allocated to livestock.* Livestock allocation within the Twin Buttes allotment would be reduced to 5,884 AUMs. Livestock allocation within the Bull Draw allotment would increase to 415 AUMs. BLM would build no new fences. The permittee would retain maintenance responsibility for range improvements. *Basic requirements that make the Texas Mountain area the preferred horse habitat would be maintained. To achieve this, there would be stipulations imposed on new oil and gas leases; Controlled Surface Use Stipulations 9 and 10, Timing Limitations 12 and 13, and Lease Notice 1. The potential would exist for defined road densities with travel management planning and potential road closures*. Since mineral leases have already been issued throughout most of the herd area, BLM would attempt to maintain the preferred habitat through conditions of approval, specified with approvals of applications to drill.

2.4.4 Alternative E (Mid-Sized Herd with WSA Excluded): *The initial wild horse AML would range between 100 head and 207 horses. The AML could be adjusted at a later date based on monitoring of range conditions.* This management range would be based on a four year gather schedule. Every fourth year, the population would increase to approximately 207 horses. BLM would then reduce the population to approximately 100 horses with a gather using the standard gather techniques of helicopter-drive-trapping and helicopter herding-roping (see Appendix B). Periodic introduction of wild horses into the herd from other HMAs would be used as a means to increase herd genetic variability (see Appendix D). Also, to increase the number of contributing adults with the population, the herd ratio of male and female animals would be adjusted so that studs compose at least 50% and possibly as much as 60% of the herd (Coates-Markle, 2002). *Unique to this alternative is that horses would not be managed within the Oil Springs Mountain Wilderness Study Area (WSA).* Wild horses would be fenced out of the WSA with 9.4 miles of fence (see Figure 2-1 for the proposed location of this fence). BLM would build and maintain the WSA fence. *BLM would also encourage horse movement into the northern part of the herd area by establishing a corridor approach. BLM would identify basic requirements to maintain preferred horse habitat. BLM would monitor the need to develop additional water sources and increased management of these sources.* The permittee would remain responsible for all other range improvements. *BLM would allocate an average of 2232 AUMs to wild horses, of the estimated 6947 AUMs available. The remainder of the available forage (4715 AUMs) would be allocated to livestock.* Livestock allocations would be reduced within the Twin Buttes Allotment to 4,510 AUMs, and increased in the Bull Draw Allotment to 205 AUMs. *There would be additional stipulations on new oil and gas leases to maintain preferred horse habitat: CSU-9, CSU-10, TL-12, TL-13 and LN-1. In addition CSU-11would be implemented to build the migration corridor. Creation of this corridor would also require reductions in road densities through travel management planning and potential road closures.* Since mineral leases have already been issued throughout most of the herd area, BLM would attempt to maintain the preferred habitat through conditions of approval, specified with approvals of applications to drill.

2.4.5 Alternative F (Mid-Sized Herd in Texas Mountain Preferred Habitat with Fences): *The initial AML would range between 100 horses, and 207 horses. The AML could be adjusted at a later date based on monitoring of range conditions.* This management range would be based on a four year gather schedule. Every fourth year, the population is expected to increase to approximately 207 horses. BLM would then reduce the population to approximately 100 horses with a gather using the standard gather techniques of helicopter-drive-trapping and helicopter herding-roping (see Appendix B). Periodic introduction of wild horses into the herd from other HMAs would be used as a means to increase herd genetic variability (see Appendix D). Also, to increase the number of contributing adults with the population, the herd ratio of male and female animals would be adjusted so that studs compose at least 50% and possibly as much as 60% of the herd (Coates-Markle, 2002). *In this alternative, wild horses would be managed only in the southern portion of the herd area.* BLM would build and maintain a fence along the southern boundary of the herd area, through the WSA (18.2 miles). BLM would also establish a

northern boundary by building and maintaining another fence (14 miles). Figure 2-1 shows where these fences would be. *BLM would allocate an average of 2,232 AUMs to wild horses, of the estimated 3,279 available in this area. BLM would maintain water sources within the defined horse habitat area. Only trailing and incidental livestock use would be allowed in this horse habitat area. Total forage allocated to livestock within the herd area would be reduced to 4,715 AUMs.* Livestock allocations would be reduced within the Twin Buttes Allotment to 4,300 AUMs, and increased in the Bull Draw Allotment to 415 AUMs. *Basic requirements that make the Texas Mountain area the preferred horse habitat would be maintained. To achieve this, there would be additional stipulations on new oil and gas leases within the horse habitat area: CSU-9, CSU-10, TL-12, TL-13, and LN1. These stipulations include defined road densities that would also be implemented through travel management planning.* Since mineral leases have already been issued throughout most of the herd area, BLM would attempt to maintain the preferred habitat through conditions of approval, specified with approvals of applications to drill. Horses would periodically be introduced into the herd to strengthen genetic variability.

2.4.6 Alternative G (Maximum Sized Herd in Fenced Herd Area): *The initial AML for wild horses would range between 310 and 643 animals. The AML could be adjusted at a later date based on monitoring of range conditions.* This management range would be based on a four year gather schedule. Every fourth year, the population would consist of approximately 643 horses. BLM would then reduce the population to approximately 310 horses using the standard gather techniques of helicopter-drive-trapping and helicopter herding-roping (see Appendix B). Introduction of wild horses into the herd from other HMAs would be used initially as a means to increase herd genetic variability (see Appendix D). Also, to increase the number of contributing adults with the population, the herd ratio of male and female animals would be adjusted initially so that studs compose at least 50% and possibly as much as 60% of the herd (Coates-Markle, 2002). The entire boundary of the herd area would be fenced. *An average of 6914 AUMs would be allocated to wild horses. No forage would be allocated to livestock.* BLM would build and maintain 32.5 miles of new fence to completely enclose the herd area. This would include 18.2 miles on Oil Springs Mountain, through the WSA. BLM would also be responsible for maintaining approximately 61 miles of existing boundary fence, and all water sources within the herd area. Figure 2-1 shows all of these fences. *BLM would identify basic requirements to maintain preferred horse habitat. To maintain this habitat, additional stipulations would be placed on new oil and gas lease: CSU-9, CSU-10, and LN-1. These stipulations include defined road densities that would also be implemented through travel management planning. Oil and gas stipulations would not automatically be imposed; stipulations would only be imposed on a case-by-case basis as conditions warranted, and for only as long as these conditions warranted.* Since mineral leases have already been issued throughout most of the herd area, BLM would attempt to maintain the preferred habitat through conditions of approval, specified with approvals of applications to drill. Horses would initially be introduced into the herd to increase and maintain genetic variability (see Appendix D).

2.5 Alternatives Considered, but eliminated from detailed analysis.

2.5.1 Alternative D (Mid-Sized Herd in Unfenced Herd Area): The wild horse AML would range between 100 horses and 207 animals. Gathers would be completed every four years, or in keeping with current program directives. An average of 2232 AUMs of the estimated 6914 available would be allocated to wild horses. BLM would allocate the remainder of forage to livestock. BLM would build no new fences. The grazing permittee would retain maintenance responsibility for range improvements. Horses would not be introduced into the herd to increase genetic variability. Fertility control would not be used to control herd recruitment. All other resources would be managed in accordance with the existing situation. There would be no new stipulations for Oil and Gas development. Under this alternative there is a high probability that wild horses would continue to move outside of the herd area, especially to the unfenced southwest. It would not be practical for BLM to attempt to continuously remove horses from outside the herd area and from private lands; therefore this alternative was eliminated from further consideration.

2.5.2 Alternative H (Maximum Sized Herd in Unfenced Herd Area): The wild horse AML would be between 300 minimum and 622 horses. Gathers would be conducted every four years. An average of

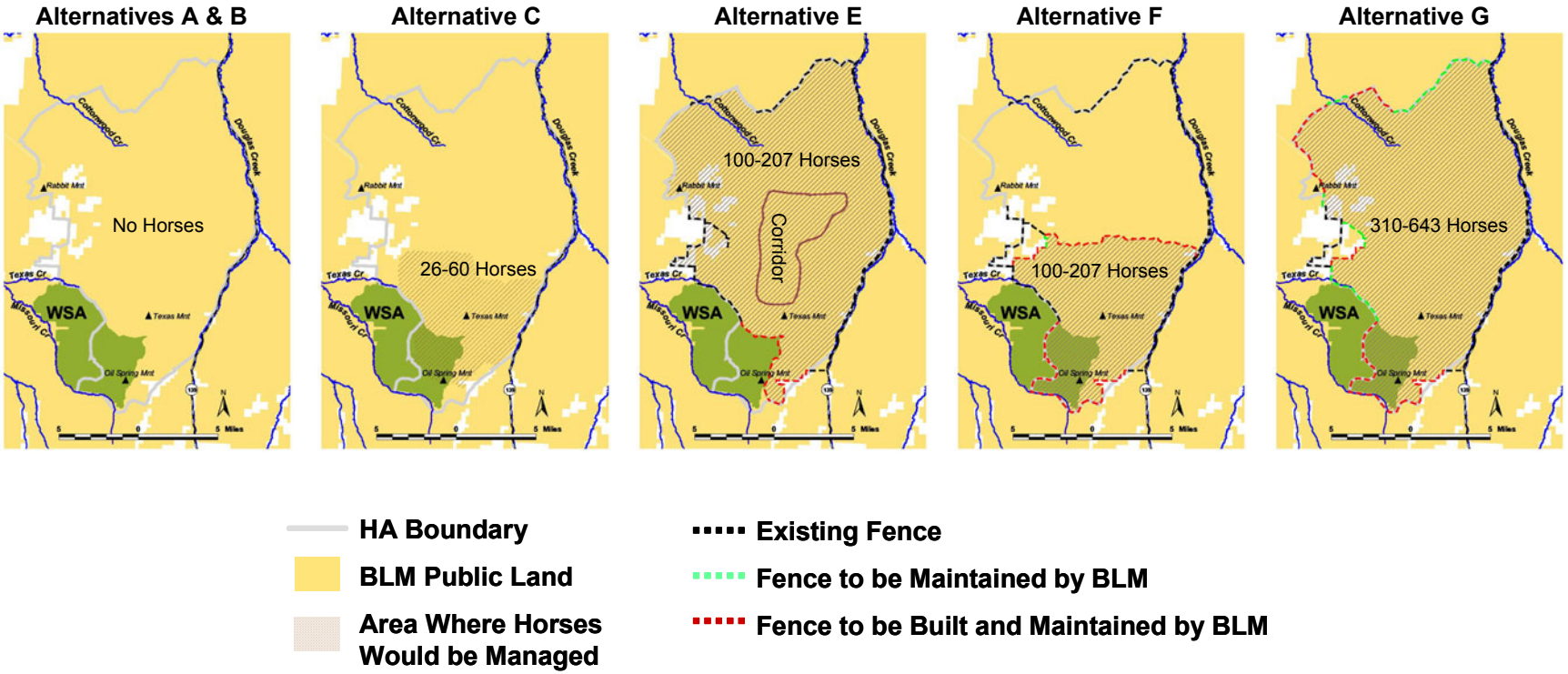
6914 AUMs would be allocated to wild horses. There would be no fences. BLM would maintain existing fences and waters within and along the boundary of the herd area. BLM would not use fertility control, or introduce horses for increased genetic variability. There would be no new stipulations on Oil and Gas. The AML for this alternative would definitely exacerbate the problem with migration of wild horses to the southwest, out of the herd area and onto private land. It would be impractical and fiscally impossible for BLM to continuously gather the large number of horses that would move outside the herd area under this alternative. Therefore, this alternative was eliminated from further consideration.

Table 2-1: Summary of Variables among Alternatives

Variables	Alternatives							
	A Continue Current Situation	**B** Preferred Alternative Remove All Wild Horse	**C** Small Herd in Unfenced Preferred Habitat	**D** Mid-Sized Herd in Unfenced Herd Area*	**E** Mid-Sized Herd with WSA Excluded	**F** Mid-Sized Herd in Fenced Preferred Habitat	**G** Maximum Sized Herd in Fenced Herd Area	**H** Maximum Sized Herd in Unfenced Herd Area*
Forage Allocation to Wild Horses (AUM) Average Yearly Use	0	0	648	2232	2232	2232	6947	6947
Forage Allocation to Livestock (AUM)	9080	6947	6299	4715	4715	4715	0	0
Wild Horse Population (AML)	0-50 (RMP) Zero by 2007 Currently 60-151	0	29-60	100-207	100-207	100-207	310-643	310-643
Acres Public Land Allocated to Wild Horse Management	123,387 before 2007 Zero by 2007	0	54,213	123,387	112,927 (with corridor)	54,213	123,387	123,387
Fencing	None	None	None	None	Build 9.4mi Maintain 9.4mi	Build 32mi Maintain 34mi	Build 32.5mi Maintain 61mi	None
New Oil & Gas Stipulations (APD & New Leases)	None	None	CSU9; CSU10; TL12; TL13; LN1	None	CSU9; CSU10; CSU11;TL12; TL13; LN1	CSU9; CSU10; TL12; TL13; LN1	CSU9; CSU10; LN1	None
Genetic Enhancement	None	NA	Yes	None	Yes	Yes	Yes	None
Gather Techniques Required	Alternative	Alternative	Standard	Standard	Standard	Standard	Standard	Standard

**Alternatives with diagonal shading were eliminated from detail analysis. See paragraph 2.5.*

Figure2-1: Maps of the Alternatives



Section 3: Affected Environment

Generally the area is characterized as a canyon/plateau geographic type. Elevations range from 6,300 feet near Rangely to 8,000 feet on Oil Spring Mountain. Precipitation ranges from 11 inches at the lower elevations to 18 inches at the higher elevations. Vegetation is highly varied as a result of topography and precipitation. At the lower elevations are greasewood bottoms. Mid-elevations are Pinyon/juniper woodlands and sagebrush parks. Upper elevations are made up of the mountain shrub and Douglas-fir communities. There are few natural waters (springs, seeps, creeks) with the majority of water is provided by stock ponds which are scattered throughout the area. The remainder of this section contains descriptions of the affected environment by resource. Many of these descriptions refer to allotments and pastures which are depicted in Map H-3 in Appendix H.

3.1 Wild Horses:

History and Herd Distribution: The West Douglas herd historically has consisted of fewer than 200 animals (the 1996 noted 151 horses – this is the highest number ever recorded for this herd). In spite of the geographic proximity of the West Douglas Herd Area and the Piceance-East Douglas Herd Management Area, comparison of wild horse genetics in the two herds reveals no direct relationship between the West Douglas herd and the Piceance-East Douglas herd. (Cothran; 2002). Instead, the West Douglas herd has the highest genetic similarity to wild horses in Colorado's Little Book Cliffs herd, followed by the Sand Wash and Spring Creek Colorado herds.

Wild horse herd distribution has been shifting to the area around Texas Mountain since the early 1980's. This shift in distribution has been documented through periodic horse inventories. The 1981 inventory documented 92 horses in the HA with 52 (69%) using the northern portion and 36 using the area around Texas mountain. The 1985 inventory showed 65% of the horses in the Texas Mountain area. In the 1996 survey 100% of the horses were using the Texas Mountain area. The current distribution of wild horses is attributable to a variety of factors including:

- Yearlong habitat distribution – The West Douglas Herd Area boundary contains a habitat imbalance long on winter range and short on summer range. The lack of perennial waters on the winter ranges augments wild horse preference for higher elevation habitat during the summer months. Since the summer range is concentrated in the southern portion of the herd area, horses through time have shifted their habitat preference south since entering the area in the mid 1970's.

- Human disturbance – The Douglas Creek Arch is a prolific zone for energy production. Energy production efforts in the north-central portion of the herd area have been substantial. Wild horse use and energy production have proven compatible in many areas of the west, including the Piceance – East Douglas Wild Horse Herd Management area in the White River Field Office. This is less the case in West Douglas. While wild horses can certainly be found in proximity to developmental activities, heavy industrial activity in the north appears a factor in the horse's preference for ranges to the south.

Horse use outside the Herd Area has primarily occurred on the Evacuation Creek allotment, southwest of the herd area. Horses outside the Herd Area have been documented in all inventories since 1980, when 4 were counted. In 2001, 53 horses were removed from outside the herd area. And a recent inventory in 2002 showed 15 remained outside the HA.

Key habitat for wild horses in the Texas Mountain area includes; Mailbox, Waggoneer and Sand Draw Chainings; the bottoms of Texas Creek; the mountain shrub hillsides around Texas and Oil Springs Mountain and the connecting habitat. Within the Texas Mountain area a total of 2179 AUMS are available with approximately 60% within important habitat for horses. Map H-8 in Appendix H shows this key habitat.

Prior to 1983 horses moved freely between the herd area and the Piceance-East Douglas Herd Management Area. In 1983, the Colorado Department of Transportation constructed a fence along both sides of Highway 13. This double fence effectively separates the herd area from the herd management area.

Population Census: The first aerial survey was completed in 1974 resulting in only 9 horses noted. Since 1974 herd numbers have increased as high as 151 head (in 1996). The 2003 post-foal population is estimated at 93 horses. This figure includes adults and sub-adults.

The White River Field Office completed six gathers in West Douglas between 1981 and 2003, removing a total of 372 horses between these dates. Each of the gathers was completed using the standard methods of helicopter drive-trapping and helicopter herding/roping methods (see Appendix B). Table 3-1 below contains census data, estimated population size for years between census, gather years, and the number of horses removed at each gather.

Table 31: Wild Horse Population History of the West Douglas Herd Area

Year	Number Removed	Estimated Population	Year	Number Removed	Estimated Population
1974		9*	1989	23	63
1975		30	1990		50
1976		40	1991		61*
1977		53*	1992		66*
1978		68	1993		84
1979		85	1994		105*
1980		106	1995		126
1981	74	133*	1996	60	151
1982		68*	1997		95*
1983		82	1998	72	137
1984	45	98	1999		78
1985	45	59	2000		94
1986		32	2001	53	113
1987		44	2002		77*
1988		50	2003		92

** Number observed in Aerial Counts; All censuses were conducted by helicopter*
***All census data is prior to the census year foal crop.*

Dietary Habits of Wild Horses:

The National Research Council (NRC), established in 1916 by the National Academy of Sciences, has completed an in-depth study of wild horses in the western states. Findings in the Council's Report are supported by the BLM and include research regarding the degree of dietary overlap between wild horses and other ungulates occupying the same habitat. The report concludes that, while some findings suggest forbs and browse are periodically important in wild horse diets, the majority of the NRC studies agree that grasses constitute over 90% of a wild horse's annual diet. Horse dietary preferences over a range of vegetation types represented in the West Douglas Herd Area are listed below in Table 3.2.

Table 3-2: Wild Horse Dietary Preferences

Vegetation Type	Season of Use	% Grasses	% Forbs	% Browse
Mountain Shrub	Annual	85	1	12
Pinyon-Juniper	Annual	89	0	
Sagebrush-Grass/ Pinyon-Juniper	Annual	94	0	
Sagebrush-Grass (4 locations)	Annual Annual Annual Annual	92.8 95.9 85.8 95.2	7 3.6 12.9 2.5	0.2 0.3 1.2 2.4

NRC's results were obtained from studies conducted over all the seasons and under many different environmental conditions. The table illuminates that wild horses rely primarily on grass plant species, and compete to a far lesser extent for browse and forb plant species. The NRC Report states that horses and cattle share the most similar dietary preferences and, as such, possess the highest potential to compete with one another for available forage, especially during dry years or when plant nutrition is seasonally low. NRC also recognizes dietary overlap/competition between horses and elk, particularly during the winter months. NRC does not recognize notable dietary overlap or competition between horses and deer. This is likely because deer rely primarily on browse plant species during the fall and winter months; and on forb plants during the summer months. The primary dietary overlap and the potential for competition between deer and wild horses occurs during the early spring months (March and April) when grasses move from dormancy and are palatable and nutritious. Conflicts between wild horses and deer may be more closely linked to dominance and displacement rather than dietary overlap and competition. Refer to Section 3, Paragraph 3.11 (Wildlife) for a discussion of deer dietary needs.

NRC alerts the reader of the difference between dietary overlap and competition. Ungulates can exhibit dietary overlap without negative impacts to the vegetative resource, or to the species sharing the resource. Competition only occurs when a dietary overlap is coupled with a short supply of the forage being shared by the various species.

Spatial Overlap and Competition: The National Resource Council states that data related to forage preferences and competition between ungulate species does not provide adequate information to support decisions regarding forage allocation for wild horses, wildlife and livestock. Patterns of interaction between the various species are needed prior to determining management strategies addressing forage allocation. The following summarizes distinct patterns of interaction between species:

1. The different species select mutually exclusive habitat types. There is no interspatial interaction between the species.
2. The different species have overlapping habitat types but segregate into distinct locations within this habitat.
3. The different species have overlapping habitat preferences and co-exist with one another.
If the species have different forage requirements they do not compete with each other. If the species have overlapping forage requirements but are not present in sufficient numbers to deplete the forage reserves they do not compete with one another. If the forage is limited competition between the species will occur.

The Wildlife Section (Section 3, Paragraph 3.11) of this document recognizes that horse distribution is coincident with seasonal ranges of mule deer and elk. What is not available is data regarding the degree of competition that occurs between these species in the areas of spatial overlap. The Herd Area encompasses 30% of general deer winter range; 0% critical deer winter range and 3% of deer summer range. The winter range falls within the northern portion of the HA; the 3% of deer summer range that is inside the HA is located within the southern portion of the HA and coincides with wild horse concentration areas. During the critical spring months, when ungulates are most competitive for available forage, wild horse and deer likely fall into the second and third interspatial categories. The degree of spatial overlap, and, more importantly, the degree of competition is unknown. A study of seasonal and annual spatial

overlap of wild horses and deer is needed to determine the degree of forage competition that occurs between these species.

A valid concern relating to wild horse management is that grazing by wild horses can lead to range degradation, and consequent limited forage availably to wildlife species. This concern arises from the fact that wild horses graze year long, and that wild horses have the ability to crop vegetation more closely than any other ungulate species.

Herd Phenotype: The West Douglas wild horse is generally small (~14 – 14.2 hands high and 700-800 pounds), with a large, rounded jaw, straight to convex forehead, and a convex nose. Many of the horses have a narrow but deep chest, a short back and a sloping croup with relatively low set tail. The eyes are set wide apart and the ears are of average to short length. Their heads have the unrefined look associated with many of the west's wild horses.

Animal Disposition: Claims have been made that the West Douglas herd includes some of our remaining truly wild horses. The horses have a reputation of possessing high levels of self-preservation. They flee the moment they sense human presence. The herd's tendency towards aggression and acute awareness of human presence is likely an adaptation to their environment. Equines in the western hemisphere historically occupied open grasslands and high desert country, habitat well-suited to their prey animal sight-and-flee survival instincts. With the increased pressures of commercial development and human presence the West Douglas herd has increasingly begun to concentrate in remote, rugged country synonymous with heavy overstory and deep arroyos; topographic factors that limit a horse's line of sight. One manifestation of their adaptation to this environment may be increased wariness and a more aggressive survival behavior.

Population Color Balance: Color variation in this herd diminished between 1983 (BLM's first records) and the present. In 1983 the colors bay, black, grey, sorrel, and brown each contributed to at least 17% of the herd. The remaining 25% was composed of palomino, red and blue roan, buckskin, and pinto, and an occasional (3) albino. Herd color diminished steadily between 1983 and 1996. In 1996 the colors bay, brown, sorrel and black accounted for over 93% of the gathered horses. Three grey horses were gathered, and removed. In 2001 74% of the horses gathered were bay. The remaining 26% were sorrel, black and brown.

Diminished herd allelic diversity, and alleles that exist in only trace frequencies likely contribute to the diminished variation in color. Human selection during gather and removal is another probable reason for the decrease in color. While colorful horses are desirable in that they serve as 'marker' animals during census and gather operations, and colorful horses are often more popular with adopters, negative impacts to population survival cannot be directly linked to the expression of any particular color pattern within a population. There has been discussion among hunters and fur-trappers about a direct relation between mountain lion predation and light coated foals that possess patches of white. If this were the case, cougar predation could partially account for natural selection towards the more solid colors and consequent decreases in color variation. Recognition is made that managing to encourage rarer colors is secondary to managing for the desired aspects of herd social structure and individual reproductive fitness.

Population demographics: Unless otherwise indicated, the data discussed below has been compiled during gathers completed between 1983 and 2001, and during ongoing ground observations.

Social structure: The West Douglas herd is composed of small bands averaging less than 8 horses. Bands will seasonally concentrate in areas with desirable forage and available water but do not often merge and run as a herd. Concentrations in feed areas are likely more the result of survival than of herd social structure. Bands continue to migrate outside the Herd Area boundaries. A primary reason for this shift from traditional home range is likely the result of increased commercial activity that is taking place on traditional home ranges and in traditional migration corridors.

The presence of numerous, smaller bands increases in the number of studs that contribute to the breeding population which increases the numbers of breeding animals and strengthens the existing herd allelic diversity (discussed in Appendix D).

Foaling Rates and Foal Survival: The foaling rate, or number of foals born each year, is not available. Gather data between 1983 and 2001 recorded that between 20% and 26% of the gathered animals were under 1 year of age. Foal survival data is not available. In this planning document the foaling rate and herd recruitment were both conservatively averaged at 20%. This 20% figure may appear conservative in light of the range gathered being as high as 26%, but this 20% assumption is balanced by the average foaling increase calculated from analysis using Jenkin's Wild Horse Population Model, Version 3.2 (see Appendix C). The Jenkins model suggests the 20% estimate is high; calculating, instead, a long term average herd recruitment of between 11% and 14%. In any case, the current range of between 20% and 26% young observed during gather activities is indicative of a productive wild horse population. Foal survival would continue to be monitored during aerial census and during gather activities.

Sex Ratio: Historically, and continuing into 2001, the adult sex ratio of animals gathered has been close to 50% male and 50% female. The current (2001) foal sex ratio varied from the earlier years. In 2001 the majority of young (4 fillies and 10 colts) were male. The reason for the skew from the more normal 1:1ratio is unknown. Studies suggest that wild horse populations with long-term minimal human manipulation tend to favor females (~60%) over males (~40%). The most recent gather data with a preponderance of colts, may be partially the effect of human manipulation and disturbance during gather activities and will continue to be monitored in the future.

Herd Structure: A typical age structure for a wild ungulate herd is pyramidal in shape, with each age group represented and the majority of animals present in the youngest age categories. The classic pyramidical structure was recorded in the West Douglas herd during the original, 1983 gather of 110 horses. In 1983 each age group under 15 years of age was well represented: sub-adults accounted for 25% of the gathered population. Note is made that no horses over 15 years of age were gathered in 1983, suggesting early mortality since it is unlikely that the horses were wizened to helicopters and avoiding gathering. The 1991 data is not included in this analysis because only 16 horses were gathered. The 1991 data is likely unrepresentative of herd age structure at that time. In 1996 each age group was gathered but horses 8 years and older were under-represented. Only 2 horses over 15 years were documented. No horses older than 17 were gathered. Foals accounted for 20% of the animals gathered.

In 1998 the age structure still favored younger horses with the majority of gathered animals being foals to 2 years and adults 6 to 8 years. Horses 9 years and older were under-represented. No horses were gathered over 15 years old. 20% of the animals gathered were foals.

The most recent gather, completed in 2001, suggests the herd age structure is increasingly skewed towards younger horses. Over 26% of the gathered horses were under one year. No horses between the ages of 5 and 7 were gathered. Horses between 8 and 11 years were notably under-represented. No horses older than 13 were gathered.

Each gather recorded an absence of horses over 15 years of age. The bimodality of horses greater than 15 years is likely the result of harsh environmental factors causing mortality of older animals rather than the result of human manipulation of herd age structure during gather activities. Incorrect aging of the gathered horses could be exaggerating the bimodality of some of the mid-age group animals. It does appear that the maximum age of horses on the range is restricted, with the great majority of horses under 15 years of age.

Genetic Ancestry: Wild horse herds usually start from a limited number of founder animals which then contribute to the resulting makeup of the herd. Blood samples from animals gathered in October, 2001 were sent to Dr. Gus Cothran, geneticist at the University of Kentucky for analysis of genetic ancestry and genetic frequency. The highest historic genetic similarity of the West Douglas herd was with the gaited North American breeds (most common was the Mountain Pleasure Horse), followed by the Iberian

(Spanish ancestry) breeds (Cothran 2002). The Iberian similarity Cothran believes linked to the Spanish ancestry of many of the North American breeds rather than direct Spanish Barb ancestry.

Surprisingly, the West Douglas herd bore little genetic similarity to White River Field Office's adjoining Piceance/East Douglas wild horse herd. West Douglas horses are instead most closely related to the Little Book Cliffs horses, Sand Wash Basin horses and to the Spring Creek herd who range in southwest Colorado. Cothran's analysis is available upon request from the White River Field Office.

Genetic Viability: Smaller herds (<200 animals in size) which experience any degree of isolation tend to lose alleles (genetic information) through genetic drift (the loss of genetic material resulting from random mating of two individuals). This loss of material has a negative impact on the genetic composition of a herd. According to the 2001 Cothran study, genetic variation in the West Douglas herd is among the lowest he has observed in any wild horse herd. Cothran states this herd exhibits high vulnerability to inbreeding depression. The lack of genetic variation is being worsened with the continued loss of allelic diversity within the herd. The Cothran analysis recorded a high degree of allelic diversity but as much as 30% is present at such low frequencies that it risks being lost if the herd is managed under the current restrictions (low population size and no introduction of animals). Cothran states that herd variability can be preserved most effectively by managing as many animals as possible in the herd, and periodically introducing mares from other herds.

Encouraging the formation of numerous small bands also has the effect of increasing genetic exchange in the herd. An equal proportion of studs and mares serves to increase competition among males for their harems and results in an increased number of studs contributing to the gene pool: a factor beneficial to allelic exchange.

Two genetic variations were found in the West Douglas horses (PGD-D and A-be) that have seldom been observed in domestic horses and that were not detected in the adjoining Piceance/East Douglas herd. The PGD-D variant does not seem to be associated with any particular breed type. Cothran states that the A-be variant is "extremely rare" and that it has been seen in some standardbreds; possibly as few as 5 or 6 breeds. Cothran has not seen the A-be variant in any other wild horse herds. The horse possessing this marker was removed from the herd. It is unknown whether any of the horses remaining in the West Douglas herd possess this marker gene.

Neither previous gather records nor Cothran's genetic analysis documents this herd as possessing 'undesirable' genetic traits. Gather notes do record that, prior to the 1990's, a number of wild horses were destroyed because of "bad legs". These records do not identify if the leg problems were genetic, due to old injuries, or injuries that occurred during the gather activity. Gathers completed in 1996, 1997 and 2001 encountered a total of only 5 horses that had old leg injuries. These injuries were not acute enough to warrant humane destruction. Of the 53 horses gathered in the most recent, 2001 gather, 7 were diagnosed as having ringworm, a fungal skin infection.

Animal Adoptability: West Douglas horses adopted by members of the public are put to use as saddle, pack and competition horses. West Douglas horses have an adoption success rate equal to that of wild horses adopted from other herds. This statement is based on nine years of records maintained during adoption and compliance inspections completed in northwestern Colorado as well as from phone calls and other communications from wild horse adopters in Colorado and other western states.

3.2 Rangeland Management: The descriptions for grazing management are organized by the two allotments within the planning area: Twin Buttes and Bull Draw. Map H-3 in Appendix H displays the boundaries of the Bull Draw Allotment and the pastures within the Twin Buttes Allotment. Twin Buttes allotment contains a total of 158,520 acres of which 113,825 acres are within the West Douglas herd area. Bull draw allotment contains 9,564 acres and is entirely within the herd area.

BULL DRAW ALLOTMENT:

The Bull Draw allotment is used along with the East Douglas Creek Allotment, by Bryant 1991 Trust. The grazing schedule for the Bull Draw allotment is 43 cattle during the period November 16, to March 30. Listed below are the acre and Animal Unit Month (AUM) statistics for the Bull Draw allotment.

Table 3-3: Area and Land Status for Bull Draw Allotment

Ownership	Acres	AUMs
Federal	9526	187
Private (Controlled)	0	0
Private Uncontrolled	38	0
Total	9564	187

Table 3-4: The Permitted Use for the Bull Draw Allotment

Operator	Active AUMs	Suspended AUMs	Total
Bryant 1991 Trust	187	362	549

TWIN BUTTES ALLOTMENT:

The Twin Buttes allotment is a common allotment with two grazing permittees: James Steele and the Twin Buttes Ranch Company. James Steele runs 59 cattle during the period November 1, to May 30, on the Twin Buttes allotment. The Twin Buttes Ranch Company runs 1157 cattle and is reliant on the public lands throughout the year. The Twin Buttes Ranch Co. manages livestock under an Allotment Management Plan completed in 1984, with a major revision completed in 1999. Twin Buttes Ranch Company is a cow/calf operation that also maintains a registered Hereford herd.

In general the northern part of the allotment is lower in elevation with a milder climate and precipitation averaging about 10-12 inches per year. These lower elevations are used during the winter and spring. The middle elevations, centered around Texas Mountain, have a wide variance in elevation and vegetation associations. This area is used during the fall, winter, and spring. The southern part of the allotment has the highest elevations (8000feet) with precipitation ranging from 15-20 inches/year. This area is used during the summer and fall.

The following tables identify the acre and Animal Unit Month (AUM) statistics for the Twin Buttes allotment:

Table 3-5: Area and Land Status the Twin Buttes allotment

Ownership	Acres	AUMs
Federal	142883	11550
Private (Controlled)	15237	6000
Private Uncontrolled	400	NA
Total	**158,520**	**17,540**

***Table 3-6:* Qualifications of Twin Buttes *Allotment by* Operator**

Operator	Active AUMs	Suspended AUMs	Total
Twin Buttes	11,143	1,130	12,273
James Steele	407	57	464
Total	**11,550**	**1,187**	**12,737**

Table 3-7: Twin Buttes Allotment Qualifications by Pasture (Both Operators)

Pasture	Active AUMs	Suspended AUMs	Total AUMs
Cottonwood	1340	1130	2470
Lower Horse Draw	680	0	680
Water Canyon	3360	0	3360
Park Canyon	96	0	96
Texas Creek**	3550	57	3607
Red Rock*	140	0	140
West Douglas*	1095	0	1095
West Creek**	1289	0	1289
Total	**11,550**	**1,187**	**12,737**

** Pasture not within Herd Area.*
*** Part of pasture not within Herd Area*

The grazing program for the Twin Buttes allotment is described in the Allotment Management Plan. Four units within the grazing management area have been identified within the lower winter and spring ranges. These units are Lower Cottonwood, Lower Big Horse, Lower Douglas Creek and Lower Texas Creek. Livestock would be spread across the whole of the winter range from approximately November 1 to March 31. This will allow for livestock to use the rims and south slopes through the winter periods. On the Cottonwood Grazing Management (Area #1), over a four year period, livestock would be cleared out by April 1, May 1, May 7, and May 31. On the remaining area of Cottonwood pasture, livestock would be progressively moved off the pasture ending May 31. On the Lower Horse Draw Grazing Management (Area #2), over a four year period livestock would be cleared out by May 31, April 1, May 1, and May 15 (bottom areas cleared by May 7). On the Lower Douglas Grazing Management (Area #3), over a four year period livestock would be cleared by May 15, May 31, April 1, and May 1. On the remaining Water Canyon pasture livestock would be progressively moved off the pasture ending May 31. On the W1/2 Texas Creek Grazing Management (Area #4), over a four year period livestock would be cleared by May 1, May 15, May 31 and April 1. On the remaining area of W1/2 Texas Creek pasture livestock would be progressively moved off the pasture ending May 31.

The summer use period would be June 5, to November 1, using the Red Rock, West Douglas and West Cr. Pastures (outside this planning area). Livestock would be split, with half of the herd using the Red Rock and West Douglas pastures, and the remainder using the West Creek pasture. Cattle would be rotated around each grazing area for two years and then the rotation would be reversed. Shown below is the grazing schedule for this grazing program.

Table 3-8: Grazing Program 1999 Allotment Management Plan

Pasture	Year	Grazing Use Period
Cottonwood GMA	1	March 1 to April 1 November 1 to February 28
	2	March 1 to May 1
	3	March 1 to May 7
	4	March 1 to May 31
Cottonwood Pasture	ALL	March 1 to May 31
Lower Horse Draw	1	March 1 to May 31 November 1 to February 28
	2	March 1 to April 1
	3	March 1 to May 1
	4	March 1 to May 7 (Bottoms) May 15 (Uplands)
Lower Douglas GMA	1	March 1 to May 15 November 1 to February 28,
	2	March 1 to May 31
	3	March 1 to April 1
Water Canyon Pasture	4	March 1 to May 1
	ALL	March 1 to May 31
W1/2 Texas Creek GMA	1	March 1 to May 1 November 1 to February 28
	2	March 1 to May 15
	3	March 1 to May 31
W1/2 Texas Pasture	4	March 1 to April 1
	ALL	March 1 to May 31
E1/2 Texas Creek	ALL	May 20 to June 12 November 1 to December 31,
West Creek	ALL	June 5 to November 1
West Douglas Creek & Red Rock	ALL	June 5 to November 1
Park Canyon Pasture (1)	ALL	November 15 to January 30

Studies and Evaluation: Actual use records will be maintained by the permittee throughout the course of each grazing season. These records will provide the basis for actual use billings at the end of each grazing/billing period. Studies to be conducted on the allotment would include those necessary to make an evaluation of the effectiveness of the plan. Completion of these studies is subject to funding and manpower availability.

Table 3-9: Allotment Studies

Range Study	Completion Date	Frequency	Method	Responsibility
Actual Use	End of each grazing period	With each pasture change	Actual Use Record	Permittee
Utilization	3 Periods-winter spring, summer/fall	Every year	Key Forage plant	BLM
Condition and Trend	August/September	5 years	ESI, Photo Plots Daubenmire	BLM

During the Section 8, process several areas of concern were identified. For these areas a reference plant community that is desired and reasonably attainable will be identified and described. The reference area should be similar to the problem area in the type of soil, precipitation, and elevation. These sites would be monitored and compared through time to determine what progress is being made in the problem area.

- Riparian Monitoring (BLM): Willow Distribution-Using low level aerial photos, retaken on a five year schedule.

- Trend Monitoring (BLM): As outlined above, permanent photo plots would be established in each pasture to ensure consistency in the vegetative data that would be obtained. Paired plots would be established in conjunction with the permanent photo plots. These plots would be read every five years.

- Compliance Monitoring (BLM): In addition to specific resource studies, such as those mentioned above, allotment supervision visits would be conducted to check licensed compliance of the AMP. A compliance checklist would be completed at this time and filed with the AMP.

Special Studies: Twin Buttes Ranch Co. has identified conflicts with wildlife, specifically with elk. Determination of the scope and monitoring needs for special studies will be coordinated with Colorado DOW, BLM and Twin Buttes Ranch Co. Twin Buttes ranch has expressed an interest in conducting monitoring studies which were established as a part of their program with Colorado State University. Utilization studies should be compiled and mapped yearly.

AMP Evaluation: Evaluation of the AMP would be made after each monitoring cycle.

Existing Water Developments: Within the West Douglas Herd area there are 69 stock ponds, 3 wells and four developed springs. The stock ponds range in age and usability but the majority are functional. None of the wells are functional.

3.3 Vegetation: The vegetation section is presented under two landscape scales: by the planning area as a whole (West Douglas Herd Area) and by pasture analysis. The vegetation resource is projected in this manner in order to show the extent of the vegetation communities (Planning Area Analysis) and the vegetation standard for public land health under a pasture analysis.

The White River ROD/RMP objective for plant communities is to: "Maintain healthy, diverse and sustainable rangeland and woodland plant communities. Sustain a landscape composed of plant community mosaics that represent successional stages and distribution patterns that are consistent with natural disturbance and regeneration regimes, and compatible with the goals identified in Standard Three of the Standards for Public Land Health." The RMP also specifies that management of plant communities includes the following requirements:

- Land use approval actions will maintain a site threshold above the conservation threshold.
- Rangeland Desired Plant Communities will be managed at high-seral [late-seral] or healthy mid-seral.
- Fifty percent of the annual forage production will be preserved for plant's life cycle requirements.

<u>PLANT COMMUNITIES UNDER A PLANNING AREA PERSPECTIVE</u>:

The native plant communities can be described by major plant associations that are characterized by one or two dominant plant species or an association of several dominant plant species. Distribution of these associations is influenced primarily by precipitation and elevation and, to a lesser extent, by aspect and soil type.

GRASSLAND ASSOCIATION: Grasslands consist of a perennial grass type intermixed with forbs, half shrubs, occasional browse species, and annual grasses and noxious plants when in a deteriorated condition. Native grasslands generally occur as scattered patches on wind swept ridge tops, uppermost south slopes, and on deeper soils in valley bottoms. Grassland areas created by vegetative manipulation and wildfire are also considered in this association. Available moisture (as influenced by elevation, soils, and topography) is probably the dominant factor influencing species composition, density, and diversity. Stands at elevations below 7,000 feet generally exhibit lower plant densities and species diversity. Associations at lower elevations are dominated by grasses adapted to xeric conditions such as Salina wildrye, Indian ricegrass, squirreltail, western wheatgrass and Sandberg bluegrass. Abundance and diversity of forb species are more limited than in grasslands at higher elevations. Saltbush species are

commonly scattered throughout the type where it occurs on saline-alkaline soils. Big sagebrush is actively invading the type at all elevations. Grasses adapted to mesic conditions are more common at elevations above 7,000 feet. Dominant species include subalpine and Letterman needlegrass, Kentucky bluegrass, big bluegrass, slender wheatgrass, and some bromegrasses. Associated shrubs and forbs include big sagebrush, black sagebrush, mountain shrub browse species, arrowleaf balsamroot, buckwheat, and penstemons. This association makes up 40,575 acres (33%) in the herd area.

GREASEWOOD ASSOCIATION: The greasewood type is typically dominated by dense stands of greasewood (*Sarcobatus vermiculatus*), two to five feet in height. Under story growth in dense stands is usually very sparse, consisting primarily of low growing annual grasses and forbs. Open stands support a mixture of perennial shrubs and have a perennial and annual grass-forb under story. The greasewood association is limited primarily to low elevation drainage bottoms that have deep, saline-alkaline, poorly drained alluvial soils. The type is intermixed with saltbush and sagebrush on lower saline-alkaline soils. This association makes up 2,221 acres (2%) in the herd area.

SALTBUSH ASSOCIATION (SALT DESERT SHRUB): The saltbush type consists of mixed stands of low growing shrubs dominated by saltbush and sagebrush stands. Areas in good condition are occupied by a diverse perennial grass and forb complex. Stands in deteriorated condition support substantial infestations of annual grasses and noxious plants. This vegetation type is comprised of various distinct and intermixed subtypes with differing species composition and density. The type is mainly found in low precipitation zones below 6,000 feet in elevation. It is restricted to semi-arid climatic conditions and is at a competitive disadvantage with sagebrush and greasewood in higher moisture regimes because the latter species' has a deeper root system. The type occupies saline-alkaline soils in semi-arid basins and foothills at lower elevations. This association makes up 121 acres of the herd area.

SAGEBRUSH ASSOCIATION: The sagebrush type is a mixed low to high growing shrub community dominated by various sagebrush species. The over story varies from open to completely closed stands with understory species density and diversity inversely related to overstory closure. The type occurs at all elevations and covers over 7 percent of the herd area. The association is influenced by many interacting and independent ecological factors, mainly climate, soils, topography, fire history, and grazing history. Available moisture, as influenced by elevation, affects both over story and under story species composition. Stands below 7,000 feet are generally dominated by big sagebrush. Some areas support a shadscale or winterfat component, or both. Stands above 7,000 feet are commonly mixed with mountain shrub associated species. Herbaceous species adapted to xeric conditions at lower elevations include squirreltail, Indian ricegrass, Colorado wildrye, needle-and-thread, goldenweed, and scarlet globemallow. Mesic conditions at higher elevations typically support wheatgrasses, bluegrasses, needlegrasses, bromegrasses, arrowleaf balsamroot and penstemons. Some species, associated with this type, exhibit broad environmental tolerances, typically: western wheatgrass, needle-and-thread, and Sandberg bluegrass. This association makes up 9133 acres (7%) in the herd area.

MOUNTAIN SHRUB ASSOCIATION: The mountain shrub type is a mixture of large- to medium-sized tree-like shrubs that have a mixed under story of new growth shrubs, grasses, and forbs. The over story varies from open to dense stands and under story species density and diversity reflects an inverse relationship to over story closure. In some areas, the type appears to support the highest herbaceous production and species diversity of any plant association. The association occupies higher elevation on east, west, and north slopes but extends into lower elevations on cool exposures and comprises about 438 acres of the herd area. The primary environmental factor affecting the mountain shrub associations is available moisture, as influenced by elevation, soils, topography, and wildfire. The type is largely restricted to elevations about 7,000 feet in higher precipitation zones. Species composition and density is diverse despite its restricted altitudinal distribution. Below 7,000 feet on deeper well drained soils, the type commonly intergrades with the sagebrush and pinyon/juniper association.

PINYON/JUNIPER ASSOCIATION: The pinyon/juniper vegetation type is a broad classification covering several associations of pinyon pine (*Pinus edulis*) and various western junipers. The primary juniper species found in the resource area is Utah juniper (*Juniperus utahensis*). The type characteristically occurs on xeric ridge tops with shallow soils. It apparently has a competitive advantage over other

vegetation types and is the climax association on these sites. The pinyon/juniper association varies from an open to closed overstory of woodland conifers supporting highly variable understory shrub and grass-forb production. Understory production generally varies inversely with overstory closure. The type exists on a wide range of soils, elevations and exposures and is limited primarily by semi-arid or cool-mesic climatic conditions and saline-alkaline soils. The type is found from about 5,200 to 8,000 feet corresponding to a general precipitation range of 10 to 20 inches per year. This vegetation covers approximately 51,788 Acres or 42% of the herd area.

CONIFER ASSOCIATION: The conifer vegetation type is a broad classification covering several types. The major overstory species are spruce, pine, or Douglas-fir trees in mixed or nearly pure stands. This type comprises about 3 percent of the resource area and consists of isolated pockets of coniferous trees growing at elevations above 6,000 feet. The conifer type is highly variable. Both overstory and understory species vary according to soils, moisture availability, aspect, temperature, elevation, and many other factors. Soils supporting conifer stands in the resource area range from very rocky, shallow soils on ridges and points to deep sandy soils in drainage bottoms. Aspect affects density, productivity, and type composition at all elevations. The north and east facing slopes usually have denser and more varied vegetation. This association makes up 1196 acres of the herd area.

BARREN/ROCK OUTCROP ASSOCIATION: Barren lands are those areas such as barren rock, erosion pavements, rock outcrops, cliffs and talus slopes that have no or only sparse vegetation. Waste lands are areas too steep and/or rocky to be beneficial to livestock or big game animals. This classification covers 17,917 acres (15%) of the herd area.

The following table depicts the vegetation communities as determined by range sites and the acres of each type within the herd area.

Table 3-10: Vegetation Communities by Range Site

Range Site/ Woodland Type	Plant Community Appearance	Predominant Plant Species in Plant Community	Acres within Herd Area
Badlands	Barren	Low Desert Shrubs and grasses	506
Torrifluvents	Nearly Barren	Sparse Desert Shrubs and annual grasses	1164
Dry Exposure	Grass Shrubland	Bluebunch wheatgrass, bottlebrush squirreltail, Colorado buckwheat, winterfat, Douglas rabbitbrush	149
Clay Salt Desert	Salt Desert Shrub	Douglas rabbitbrush, Indian ricegrass, Sandberg bluegrass shadscale, sagebrush	68
Rock Outcrop	Barren	Very Scattered shrubs and grasses	16247
Deep Loam	Low Shrubs and Grass	Beardless wheatgrass, muttongrass, snowberry and sagebrush	756
Mountain Loam/D-fir	Douglas-Fir Forest Stands	North and West facing steep slopes of predominately Douglas-Fir	1196
Foothills Swale	Grass Shrubland	Basin wildrye, western wheatgrass, Indian ricegrass, big sagebrush, rubber rabbitbrush	3117
Brushy Loam	Mountain Shrub type	Utah serviceberry, snowberry, mountain brome, elk sedge	742
Loamy Slopes	Sagebrush/grass Shrubland	Wyoming big sagebrush, Beardless wheatgrass, western wheatgrass and serviceberry	352
Stony Foothills	Pinyon/Juniper	Pinyon, juniper, indian ricegrass, beardless wheatgrass, prairie junegrass, low rabbitbrush	7822
Alkaline Slopes	Sagebrush/grass	Greasewoood, Big Sagebrush, western wheatgrass, sand dropseed	2221
Pinyon/Juniper	P/J Woodland	Pinyon, Juniper	43966

Range Site/ Woodland Type	Plant Community Appearance	Predominant Plant Species in Plant Community	Acres within Herd Area
Clayey Slopes	Hillside Bunchgrass/Salt Desert Shrub	Salina wildrye, indian ricegrass, Sandberg bluegrass shadscale, sagebrush	40404
Clayey Foothills	Grass Shrubland	Western wheatgrass, green needlegrass, big sagebrush, dwarf rabbitbrush	20
Salt Desert Breaks	Salt Desert Shrub	Indian ricegrass, galletta, needle and threadgrass, thickspike wheatgrass, Douglas rabbitbrush, shadscale	53
Rolling Loam	Sagebrush/grass Shrubland	Wyoming big sagebrush, winterfat, low rabbitbrush, horsebrush, bitterbrush, western wheat grass, Indian rice grass, squirreltail, June grass, Nevada and Sandberg bluegrass	4604
		TOTAL	123389

PLANT COMMUNITIES UNDER A PASTURE LANDSCAPE:

An analysis of the Standards for Public Land Health was conducted by pasture. Those acres considered as the Potential Natural Community, High Seral and Mid Seral were considered to be moving towards or achieving the standards. Those acres in Early Seral or declining condition were considered to be not achieving the standards. Appendix E contains the detailed vegetative analysis for each pasture within the planning area. The following table shows a summary of the acres achieving or not achieving the standards.

Table 3-11: Acres of Vegetation Achieving or Not Achieving the Standards for Public Land Health

Current Situation			
Standard Vegetation Communities by Pasture	**Acres Achieving or moving toward Achieving Standards**	**Acres Not Achieving Standards**	**Causative Factor**
Cottonwood	13245	1099	Oil & Gas, Livestock Grazing
Upper Horse Draw	8943	1059	Oil & Gas, Livestock Grazing
Water Canyon	21838	1284	Oil & Gas, Livestock Grazing
East Texas Creek	20148	593	Oil & Gas, Livestock, Wild Horses
North Texas Creek	17058	831	Oil & Gas, Livestock
West Texas Creek	18241	1372	Oil & Gas, Livestock, Wild Horses
West Creek	7061	166	Oil & Gas, Livestock, Wild Horses
Water Hole	41	0	None
Park Pasture	882	0	None
Bull Draw Allotment	9526	0	Oil & Gas, Acres unknown
Total	**117935**	**5454**	

BLM also conducted a detailed analysis of the plant communities to determine the livestock/wild horse carrying capacity for the herd area. The analysis revealed that the actual carrying capacity (6947 AUMs) is far less than what was currently allocated (9080AUMs) in the White River ROD/RMP. The detailed analysis is documented in Appendix E. Listed in Table 3-12 is a summary of the acres, proposed carrying capacity and the current livestock forage allocation for each of the pastures of the Twin Buttes allotment

and the Bull Draw Allotment within the Herd Area. The "Current Acres/AUM" column shows that there is a great difference among pastures. Specifically, current allocation within Water Canyon Pasture results in seven acres per AUM. BLM discovered that this is an over-allocation due to a lack of re-analysis when the allotment was converted from sheep to cattle. Reassessment and revision of the carrying capacity for this pasture accounts for the greatest portion (2,101 AUMs) of the difference (2,133 AUMs) between the current forage allocation and the proposed allocation for the herd area. Acurate determination of forage allocation is necessary because is used to schedule livestock numbers and periods of use, as well as estimating wild horse herd appropriate management levels.

Table 3-12: Available Forage within the Herd Area

Pasture/Allotment	Acres	Proposed Forage Allocation AUMs	Proposed Acres/AUM	Current Livestock Forage Allocation AUMs	Current Acres/AUM
Cottonwood	14,344	685	21	1,340	13
Upper Horse	10,002	560	18	680	15
Water Canyon	23,122	**1,259**	**18**	**3,360**	**7**
Texas Creek	58,243	**3,568**	**16**	**2,838**	**21**
Water Hole	43	3	14	0	0
Park	882	49	18	96	9
West Creek	7,227	408	18	579	12
Bull Draw Allotment (Within HA)	9,526	**415**	**23**	**187**	**51**
Totals inside Herd Area	**123,389**	**6947**	**19**	**9,080**	**14**

Invasive/Non-Native Species (Noxious Weeds): Noxious weeds and their continued encroachment on BLM lands represent a serious threat to the continued productivity, diversified use and aesthetic value of White River Resource Area lands. An active noxious weed management program emphasizes cooperation with Rio Blanco County, private landowners and BLM land users. Existing management is based in part on the 1990 White River Resource Area Noxious Weed Management Plan and the priorities established by the *Record of Decision, Vegetation Treatment on BLM Lands, 13 Western States* (BLM 1991). The principal direction of the program has been an integrated approach using: (1) chemical control using BLM approved chemicals, (2) biological control insect releases focused on leafy spurge, musk and Canada thistles, (3) mechanical control primarily digging of initial infestations of biennial noxious weed species, and (4) management to maintain competitive vegetation to prevent noxious weed invasion and spread. All aspects of the program have been effective where they have been applied.

Within the herd area there has been a number of outbreaks of noxious weeds. Noxious weeds of concern include; cheatgrass, halogeaton, thistles (bull, musk and Canada), knapweeds (spotted diffuse and Russian), burdock, hoarycress, mullein, black henbane and houndstongue. Cheatgrass and halogeaton are found throughout the herd area, with the primary control method being management to maintain competitive desirable species. On those noxious weed species which are controlled by direct control methods, there has been good success at containing the initial outbreaks.

3.4 Water Quality: The affected environment includes four watersheds; Douglas Creek, Evacuation Creek, Hells Hole, and Cottonwood Creek. These watershed boundaries do not follow the pasture boundaries; listed in each description of the watersheds are the pastures. Within the herd area there are 52,570 acres of fragile soils and 645 acres of saline soils. Typically fragile and saline soils have a very high erosion potential. To date, the State of Colorado has not set criteria for determining thresholds for sediment loads. In Appendix H, Map H-3 shows fragile soils, and Map H-6 shows watersheds, and water sources.

Douglas Creek Watershed: The following pastures are within the Douglas Creek Watershed: East Texas, Bull Draw, Water Canyon, Lower Horse Draw, east half of West Creek, and east half of North Texas. There are 271,504 acres in the Douglas Creek watershed, 240,796 acres are Federal lands and 79,368 acres are on Federal lands within the West Douglas Herd Area. Douglas Creek is tributary to the White River near Rangely, Colorado. The hydrologic setting of the Douglas Creek watershed ranges from relatively low lying, semi-arid lands yielding relatively little flow to steep, moderately high mountains that contribute major flows to Douglas Creek. There is very little flow or water quality data available for the tributaries to Douglas Creek. A USGS gauging station at the mouth of Douglas Creek collected instantaneous flows and periodic water quality data for the water years, 1977, 1978 and 1995. For the period of record, data indicates, this drainage to be an ephemeral stream, flowing in direct response to snow melt or rain. Spring runoff from the semi-arid lands, generally occurs from March through early May and, from the higher terrain, into early June. Documented instantaneous peak flows from summer storms are 3,250 cfs on July 24, 1977, and 541 cfs on July 14, 1995. The major pollutants that the Douglas Creek watershed contributes to the White River are high sediment and salinity loads. USGS measured a late summer rainstorm on October 6, 1994. The instantaneous sediment load at the discharge of 6.3 cfs was 15,800 mg/l or 270 tons per day with a specific conductance of 4,750 umhos. Douglas Creek watershed is also listed in the White River ROD/RMP as a fragile watershed because it has soils that are both highly erosive and moderately saline.

The State has classified this segment of the White River and its tributaries (from above Douglas Creek to the state line) as a "Use Protected" reach. Its designated beneficial uses are: Warm Aquatic Life 2, Recreation 2, and Agriculture. The antidegredation review requirements in the Antidegredation Rule are not applicable to waters designated use-protected. For those waters, only the protection specified in each reach will apply. For this reach, minimum standards for three parameters have been listed. These parameters are: dissolved oxygen = 5.0 mg/l, pH = 6.5 - 9.0 and Fecal Coliform = 2000/100ml. In addition, this lower reach of the White River and its tributaries are also listed in the report, "Water Quality Limited Segments still requiring Total Maximum Daily Loads (TMDLs)", a list prepared by the state to fulfill section 303(d) of the *Clean Water Act (CWA)*. This segment is one of several drainages the state found to have reason to suspect water quality problems. The source of impairment for these tributaries is sediment. Currently the state does not have a numerical standard for sediment loads. Compliance and consistency with the state nonpoint source management plan, state water quality standards and the Clean Water Act is mandatory. The CWA places responsibility for protection of water quality with the states and requires federal agency compliance.

Evacuation Creek Watershed: The following pastures are within Evacuation Creek Watershed: south half of West Texas, west half of West Creek and Park Canyon. Evacuation Creek is tributary to the White River in Utah. Evacuation Creek watershed is 114,800 acres; of these acres 99,100 Federal lands; and of these; 24,700 acres are in the herd area. Within the herd area the tributaries to Evacuation Creek are Texas and Missouri Creeks, and Park Canyon. The hydrologic setting of the area ranges from relatively flat dissected basins to steep, barren side slopes in the upper reaches. Texas Creek is an ephemeral channel and is listed in the White River ROD/RMP as a fragile watershed. This listing is due to the highly erosive soils within the watershed and the fact that it contains soils that are moderately saline. Runoff from these semi-arid areas is generally from snowmelt; March through May and high intensity summer and late fall rainstorms. The White River ROD/RMP recommends using best management practices to help heal the watershed and reduce sediment and salinity loads. Instantaneous measurements of flow and water quality data are not available for these tributaries of Evacuation Creek.

Currently, there are two active soil stabilization plans within the Evacuation Creek watershed. The purposes of these activity plans are to reduce the present rate of soil erosion, control salinity transportation off-site, improve native plant cover, and aid the watershed's ability to retain precipitation.

As required by the Clean Water Act, the state of Utah has designated the White River from the Colorado-Utah state line to the confluence with the Green River as fully supporting of all of its beneficial use classifications. This segment beneficial use classification is: Recreation and Aesthetics, 2B; and Aquatic Life Use Support, 3C. Four parameters have been listed on the Numeric Criteria for this reach. These parameters are: dissolved oxygen = 5.5 mg/l, pH = 6.5 - 9.0, maximum Fecal Coliform = 2000/100ml and maximum Total Coliform = 5000/100ml. For these parameters, a fully supporting rating indicated the criterion was not exceeded in more than 10% of the samples collected. Evacuation Creek in Utah has not been assessed at this time. Data that is available for this drainage indicates total dissolved solids entering the White River to exceed state standards in 18 of the 19 samples collected. The mean concentration was 3,041 mg/l.

Cottonwood Creek Watershed: The following pastures flow into Cottonwood Creek Watershed: Cottonwood and a small northern portion of North Texas. There are 28,300 acres in the Cottonwood Creek watershed, 26,500 acres are Federal lands and 18,460 acres are Federal lands within the West Douglas Herd Area. Cottonwood Creek is an ephemeral drainage that is tributary to the White River downstream from Rangely Colorado. It is typical of a semi-arid setting, in that runoff comes during spring snowmelt and intense summer or late fall rainstorms and carries with it elevated sediment loads. A localized intense storm has the ability to erode upstream sediments deposited over a five to ten year period in just one event. Cottonwood Creek watershed is listed in the White River ROD/RMP as a fragile watershed because it is a low precipitation area with flashy intense runoff and soils that are highly erosive.

The State has classified this segment of the White River and its tributaries (from above Douglas Creek to the state line) as a "Use Protected" reach. Its designated beneficial uses are: Warm Aquatic Life 2, Recreation 2, and Agriculture. The antidegredation review requirements in the Antidegredation Rule are not applicable to waters designated use-protected. For those waters, only the protection specified in each reach will apply. For this reach, minimum standards for three parameters have been listed. These parameters are: dissolved oxygen = 5.0 mg/l, pH = 6.5 - 9.0 and Fecal Coliform = 2000/100ml. In addition, this lower reach of the White River and its tributaries are also listed in the report, "Water Quality Limited Segments still requiring TMDLs", a list prepared by the state to fulfill section 303(d) of the *Clean Water Act*. This segment is one of several drainages the state found to have reason to suspect water quality problems. The source of impairment for these tributaries is sediment. Currently the state does not have a numerical standard for sediment loads.

Hell's Hole Watershed: A small western portion of the North Texas pasture flows into Hell's Hole Watershed. There are 7,486 total acres in the Hell's Hole watershed all of which are Federal lands; 831 acres are within the Herd area. The hydrologic setting of Hells Hole is similar to Cottonwood Creek and Hells Hole is in the same stream segment identified by the State.

3.5 Hydrology and Water Rights: Spring inventories were completed in 1985, 1986 and 1987 for all of White River Resource Area to identify springs that could have water rights filed on them. Table 3.6 below shows the findings of this inventory. Identified are sixteen springs that are located within the West Douglas Herd Area. The locations of these springs are displayed on Map H-6 in Appendix H. The State of Colorado water courts do not except water filings on seasonal water sources so they do not have water rights filed on them. Twelve of the sixteen springs are in the Evacuation Creek watershed, while the other four are in the Douglas Creek watershed. There are no springs on record in the upper tributaries of Cottonwood Creek or Hells Hole. In addition, the specific conductances (SC) of twelve of these sources have values greater than 5,000 micromhos indicating high levels of salinity. Levels this high make them less desirable as water sources.

Table 3-13: Springs

Spring Name	Quarter	Sec#	Twp	Range	Map Code	Water Right	SC	pH	Q in gpm	Comments	Watershed
	NWSW	10	1S	102W	155-01	85CW439	9790	8	0.79	Perennial	West Douglas
	SENE	20	3S	102W	176-03		6321	7.6	0.2	Seasonal	Evacuation Ck
Wild Rose	NWSE	20	3S	102W	176-04		8280	7.9	2	Perennial	Evacuation Ck
Big Cedar	SENE	29	3S	102W	176-05		10315	7.7	30	Perennial	Evacuation Ck
	NESE	29	3S	102W	176-06	85CW391	12574	8	7.5	Perennial	Evacuation Ck
	NWSE	29	3S	102W	176-20	85CW391	2838	8.6	6.7	Perennial	Evacuation Ck
Wild Horse	NWSE	11	3S	103W	177-08		1317	8.2	0.8	Seasonal	Evacuation Ck
Shale	SWNW	12	4S	103W	180-01		4629	6.5	0.3	Seasonal	Evacuation Ck
	SWNE	16	4S	102W	180-03		12602	8	0.5	Seasonal	Evacuation Ck
	NESE	18	4S	102W	180-20		8172	8.1	1.6	Seasonal	Evacuation Ck
	SENW	18	4S	102W	180-24		1414	10.9	1.1	Seasonal	Evacuation Ck
	SWNE	32	3S	102W	181-01		13930	8.2	0.1	Seasonal	Evacuation Ck
	NENE	8	4S	102W	181-21		8588	8.2	0.5	Seasonal	West Douglas
	NWNE	17	4S	102W	181-31	85CW355	5278	8.3	0.1	Perennial	West Douglas
Oak	NWSE	17	4S	102W	181-32		5170	8.8	2.9	Seasonal	West Douglas
	SWNW	32	3S	102W	181-34		13298	7.5	0.4	Seasonal	Evacuation Ck

3.6 Riparian Systems: The descriptions of riparian systems are organized by the same four watersheds as the above descriptions of water quality.

Douglas Creek Watershed: Within the Douglas Creek watershed riparian systems occur on Main Douglas, West Douglas, and West Creeks. All of these streams can be considered to be flat gradient, meandering and confined channels with silt clay bed materials. These streams are completely dependant on coyote willow and carex/juncus plant communities for streambank stability. All of these streams have beaver which subsist even when the channel and their ponds are dry. The area of suitable habitat for willow growth is limited by incised channel banks, which limits forage and dam building materials for the beaver. Once willow stocks are depleted beaver abandon these stretches of the stream. Beaver ponds create barriers to livestock movements up and down the channel, thus decreasing herbaceous use. Main Douglas, West Douglas and West Creeks are in proper functioning condition with an upward trend.

Texas Creek Watershed: Texas Creek has no riparian vegetation nor is there any known opportunity for the development of a riparian system in this channel.

Cottonwood Creek Watershed: Cottonwood Creek has no riparian vegetation nor is there any known opportunity for the development of a riparian system in this channel. Cottonwood creek is named for several cottonwoods growing within two miles of the confluence of the White river. The cottonwood habitat is the result of side hill springs which do not contribute to Cottonwood Creek.

Hell's Hole Watershed: Only the upper portion of this watershed is contained in the herd area, there is no perennial water, or any opportunity for development of a riparian system.

3.7 Soils: Table 3-14 below depicts the soils/soil associations by range sites and the acres of each type within the Plan Amendment area. A detailed description of each of the soils can be found in the Order III, Soil Survey of Rio Blanco County Area Colorado, available at the BLM White River Field Office.

Table 3-14: Soil Mapping Units found within the Herd Area with Soil Characteristics

Soil #	Soil Name	Slope	Range site	Salinity	RunOff	Erosion Potential	Bedrock	Acres in HA
74	Rentsac-Moyerson-Rock Outcrop complex	5-65%	PJ Woodlands/Clayey Slopes	<2	Medium	Moderate to very high	10-20	82414
53	Moyerson stony clay loam	15-65%	Clayey Slopes	2-4	Rapid	Very high	10-20	8438
91	Torriorthents-Rock Outcrop complex	15-90%	Stoney Foothills		Rapid	Very high	10-20	7910
10	Blazon, moist-Rentsac Complex	6-65%	Pinyon-Juniper woodland	2-4	Rapid	Moderate to very high	10-20	6732
41	Havre loam	0-4%	Foothill Swale	<4	Medium	Slight	>60	2307
104	Yamac Loam	2-15%	Rolling Loam	<2	Medium	Slight to moderate	>60	1861
64	Piceance fine sandy loam	5-15%	Rolling Loam	<2	Medium	Moderate to high	20-40	1853
61	Patent loam	3-8%	Rolling Loam	<2	Medium	Moderate	>60	1839
68	Rabbitex-Work loams	10-25%	PJ woodland/Deep Loam	<2	Medium	Moderate to high	40-60	1822
67	Rabbitex flaggy loam	10-65%	Pinyon-Juniper woodland	<2	Medium	Moderate to very high	40-60	1774
73	Rentsac channery loam	5-50%	Pinyon-Juniper woodlands	<2	Rapid	Moderate to very high	10-20	1344
89	Tisworth fine sandy loam	0-5%	Alkaline Slopes	>4	Rapid	Moderate	>60	1215
90	Torrifluventsgullied	0-5%	None		Rapid	Very high	>60	1211
69	Razorba channery sandy loam	30-75%	Spruce-Fir woodland	<2	Medium	Very high	>60	1197
36	Glendive fine sandy loam	2-4%	Foothills Swale	2-4	Slow	Slight	>60	990
75	Rentsac-Piceance complex	2-30%	PJ woodland/Rolling Loam	<2	Medium	Moderate to high	10-20	778
9	Blakabin-Rhone-Waybe complex	5-50%	Brushy Loam/Brusy Loam/Dry Exposure	<2	Medium to rapid	Moderate to very high	>60	587
5	Badland	50-100%	None	--	Very rapid	Very high	0-10	512
94	Turley fine sandy loam	3-8%	Alkaline Slopes	2-4	Medium	Slight to moderate	>60	484
93	Turley fine sandy loam	0-3%	Alkaline Slopes	2-4	Medium	Slight	>60	463
70	Redcreek-Rentsac complex	5-30%	PJ woodlands/PJ woodlands	<2	Very high	Moderate to high	10-20	445
60	Patent loam	0-3%	Rolling Loam	<2	Medium	Slight	>60	292
78	Rock Outcrop	50-100%	None	--	Very high	Slight	0	194
96	Veatch channery loam	12-50%	Loamy Slopes	<2	Medium	Moderate to very high	20-40	160
19	Chipeta-Walknolls Complex	5-15%	Clayey Saltdesert/Saltdesert breaks	8-16	Rapid	High	10-20	152
58	Parachute Loam	25-75%	Brushy Loam	<2	Medium	Very high	20-40	152
76	Rhone loam	30-75%	Brushy Loam	<2	Medium	Very high	40-60	144
42	Irigul channery loam	5-50%	Loamy Slopes	<2	Medium to rapid	Very high	10-20	128
15	Castner channery loam	5-50%	Pinyon-Juniper woodlands	<2	Medium to rapid	Moderate to very high	10-20	124
3	Absher loam	0-3%	Alkaline Slopes	4-8	Medium	Moderate to high	>60	118
37	Glenton sandy loam	1-6%	Alkaline Slopes	<4	Slow	Moderate	>60	116
95	Uffens loam	0-5%	Alkaline Slopes	4-8	Slow	Moderate	>60	78
62	Patent loam	8-15%	Rolling Loam	<2	Medium	High	>60	60
43	Irigul-Parachute complex	12-45%5-30%	Loamy Slopes/Mountain Loam	<2	Rapid	Slight to high	10-20	43

Soil #	Soil Name	Slope	Range site	Salinity	RunOff	Erosion Potential	Bedrock	Acres in HA
13	Bulkley channery silty clay loam	5-30%	Pinyon-Juniper woodlands	<2	Rapid	High	40-60	42
6	Barcus channery loamy sand	2-8%	Foothills Swale	<2	Slow	Moderate	>60	40
4	Absher loam	3-8%	Alkaline Slopes	4-8	Rapid	Moderate to very high	>60	31
101	Work Loam	3-8%	Deep Loam	<2	Medium	Moderate	>60	27
54	Nagitsy-Irigul channery loams	5-50%	Brushy Loam/Loamy Slopes	<2	Medium	Slight to very high	20-40	24
1	Abor Clay Loam	5-30%	Clayey Foothills	<4	Rapid	High	20-40	20
33	Forelle loam	3-8%	Rolling Loam	<2	Medium	Moderate	>60	12
48	Kobar silty clay cloam	3-8%	Deep Clay Loam	<2	Medium to rapid	Moderate	>60	7
98	Waybe-Vandamore Variant-RO complex	5-30%	Dry Exposure	<4	Rapid	Moderate to high	10-20	2
							Total Acres	128145

Many of the soils within the herd area are considered to be fragile on slopes greater than 35 percent and have been mapped as Controlled Surface Use Stipulation 1 (CSU-1) in the White River ROD/RMP. Map H-7 in Appendix H shows where these fragile soils are within the herd area. CSU-1 states that surface disturbing activities will be allowed in these areas only after an engineered construction/reclamation plan is submitted by the operator and approved by the Field Manager. An exception may be granted by the Field Manager if an environmental analysis of the proposed action identifies that the scale of the operation would not result in any long term decrease in site productivity or increased erosion. A total of 52,570 acres are considered to be fragile or extremely saline on slopes exceeding 35 percent; of these; 51,782 acres are mapped as being fragile. Excessive slope steepness increases the erosion potential of soils because it increases the rate at which water will flow overland and transport soil particles. The USDA Soil Conservation Service publications state that slopes of 20 to 35 percent contribute to a severe erosion hazard. The table below identifies the acres affected by alternative and watershed.

Table 3-15: Acres OF CSU-1 by Watershed and Alternative

	Alternative A		Alternative B		Alternative C		Alternative E		Alternative F		Alternative G	
Watershed	**All**	**CSU-1**	**All**	**CSU-1**	**All**	**CSU-1**	**All**	**CSU-1**	**All**	**CSU-1**	**All**	**CSU-1**
Cottonwood	19,425	0	19,425	0	0	0	19,425	5,384	0	0	19,425	5,384
Douglas Ck	80,693	3,446	80,003	690	6,651	3,446	80,693	32,398	25,287	13,448	80,693	32,398
Evacuation	27,156	2,653	26,623	533	4,794	2,653	19,099	8,077	22,619	13,631	27,156	13,987
Hells Hole	846	0	846	0	0	0	0	0	0	0	846	0
Total	128,120	6,099	126,897	0	11,445	6,099	119,413	45,859	47,906	27,079	128,120	51,769

Approximately 788 acres within the herd area are mapped as being highly saline as well as fragile. In addition, a substantial acreage of soils are slightly to strongly saline at the surface or in a near surface subhorizon. These soils generally support a sparse vegetation cover of low salt tolerant desert shrubs, grasses, and cryptogamic lichens. They formed in alluvium, colluvium, residuum, and reworked eolian deposits derived dominantly from shale and sandstone. Because they lack continual moisture, these soils are dry, causing salts to precipitate at the surface as soil moisture evaporates. Runoff from these areas transports salt in solution and sediment contains undissolved salts that go rapidly into solution when they reach a major waterway

In addition, within the planning area, approximately 108,767 acres or 85% of the total acres consist of soils less than 20 inches deep. The majority of these soil surfaces generally have a high portion of fine materials with little organic matter. Characteristic of these soils is slow permeability, low available water capacity, steep slopes, and shallow depth to rock; making runoff rapid.

Soils susceptible to wind erosion cover approximately 10,300 acres. These soils have very fine sands and sandy loam and lack clay and organic matter. Permeability is usually rapid, available water capacity is moderate.

The soil types used to determine land health standard are listed in the table below with corresponding acreage of each soil type. These soils are in the drainage bottoms where the horses tend to congregate. Map H-3 in Appendix H shows the location of these soils within the herd area.

Table 3-16: Soils not meeting the Land Health Standard

Soil Number	Soil Name	Range site	Slope	Acres in HA
3	Absher loam	Alkaline Slopes	0-3%	118
6	Barcus channery loamy sand	Foothills Swale	2-8%	40
36	Glendive fine sandy loam	Foothills Swale	2-4%	990
37	Glenton sandy loam	Alkaline Slopes	1-6%	116
41	Havre loam	Foothill Swale	0-4%	2307
61	Patent loam	Rolling Loam	3-8%	1839
89	Tisworth fine sandy loam	Alkaline Slopes	0-5%	1212
90	Torrifluvents gullied	Alkaline Slopes	0-5%	1210
93	Turley fine sandy loam	Alkaline Slopes	0-3%	463
94	Turley fine sandy loam	Alkaline Slopes	3-8%	483
			Total Acres	8778

3.8 Wilderness & Externally Identified Areas of Potential Wilderness Character: Oil Spring Mountain Wilderness Study Area (WSA), which straddles the southern boundary of the West Douglas Herd Area, is an undeveloped island surrounded by scattered oil and gas wells, roads and well pads. There are no other areas remaining in a natural state with similar landforms and ecosystems within the oil and gas development belt in this region of Western Colorado. Management of WSAs is directed by the BLM's Interim Management Policy (IMP) which mandates management so as not to impair their suitability for preservation as wilderness. This language is derived from the Federal Land Policy and Management Act (FLPMA), and is referred to as the "nonimpairment" mandate. The *Wilderness Study Report, Record of Decision, Craig District Study Areas* (BLM 1991*)* does not recommend that Oil Spring Mountain WSA become a designated wilderness because of pre-FLPMA oil and gas leases; however, the WSA will continued to managed per the IMP until such time as Congress acts to either release the area to other multiple uses or designate it as wilderness. Public interest groups in Colorado have identified additional area with potential wilderness character within the herd area which includes additional acres adjacent to, and north of the WSA.

The values listed below are typically used to describe the wilderness character of a WSA. The Oil Spring Mountain WSA specific descriptions following each value are excerpts from the Craig District *Wilderness Study Report Record of Decision* (BLM 1991).

NATURALNESS: The Oil Spring Mountain WSA is predominantly natural in character with negligible human imprints. Only minor imprints of humans are scattered around the periphery of the WSA. Existing range improvements include five improved springs and seven stock ponds which are screened by vegetation and topography. Eleven abandoned or plugged wells occur within the WSA and two shut-in gas wells in the western portion of the WSA, all of which are well screened by vegetation and topography and remain substantially unnoticeable within the area.

SOLITUDE: Topographic and vegetative screening within the WSA provides outstanding opportunities for visitors to experience solitude. The large blocked configuration of the WSA provides ample room for visitors to disperse and become isolated and segregated from others using the area. The relatively low use within the WSA also contributes to outstanding opportunities for solitude.

PRIMITIVE AND UNCONFINED RECREATION: The WSA contains outstanding opportunities for primitive and unconfined recreation. Big game hunting is the primary activity while others include hiking, backpacking, horseback riding and wildlife viewing. The rugged dissected topography and varying landforms are appealing for photography. The very diverse botanic communities within the WSA provide excellent opportunities for nature study. The WSA is accessible via dirt roads which nearly surround the WSA. The large blocked configuration allows for unconfined movement within the WSA. Low use of this WSA contributes to excellent primitive recreation experiences.

SPECIAL FEATURES/SUPPLEMENTAL VALUES: A portion of the WSA is identified as critical habitat (summer range) for mule deer. The diverse vegetation types also provide a variety of wildlife habitat and biological diversity. The WSA is an undeveloped island surrounded by oil and gas development. The area provides undisturbed habitat for flora and fauna displaced by human activities outside the WSA. A small natural arch and cave in the southwest portion of the WSA adds interest. Archeological sites also occur within the WSA. No other special features are known to occur in the Oil Spring Mountain WSA. It is of note that horses were identified in the original wilderness inventory conducted in 1979, within the WSA, yet this information was not carried through to the Craig District *Wilderness Study Report, Record of Decision* (BLM 1991).

3.9 Geology and Minerals:

OIL AND GAS

The herd area is located along the Douglas Creek Arch, which supports numerous oil and gas fields. Production is mainly natural gas. Producing formations, in descending order, are the Cretaceous Mancos, Dakota and Buckhorn, Jurassic Morrison, and the Pennsylvanian Weber Sandstone.

Approximately 93% of the herd area (118,786 acres) is presently leased for the development of the oil and gas resources. There are eleven unitized areas which are completely or partially located within the herd area, comprising 38,396 acres (approximately 30% of the herd area). Unitized areas are made up of several individual leases grouped together and operated as a single lease in order to provide for more efficient operations and recovery of oil and gas reserves. Individual leases date from 1925 to 2002. Over 95% of these were issued prior to issuance of the Record of Decision for the White River RMP, and approximately 84% are considered to be held by production. The two oldest units, Douglas Creek and Dragon Trail, were established in 1938 and 1959, respectively.

Available records from the Colorado Oil and Gas Conservation Commission (COGCC) indicate that, as of December 29, 2003, 880 wells have been drilled in the herd area. Of these, approximately 541 are currently active; i.e. they are producing (497), shut-in (41), or injection wells (3). Most wells are concentrated in an east-west band across the middle one-third of the herd area.

Existing well densities, both planned and actual, vary throughout the area. Most of the unitized areas, representing about 30% of the herd area, are planned for eight wells per section. Actual development has been close to this number, as well. Approximately 15% of the area is planned at 4 wells per section by State COGCC order, while the remaining 55% of the herd area has no planned/ordered spacing. In this last case, 16 wells per section could be developed. Ultimately, the density is based on several factors, such as estimated reserves, identified geologic structures, and actual production of surrounding wells, and is less than that planned or established by order.

Map H-5 in Appendix H shows leased areas and active wells within the herd area.

COAL

The Upper Mesaverde Formation contains the principle coal seams in the region, with some coal seams in the lower Mesaverde. Interest in the coal form in and around the herd area is low because of more accessible coal available elsewhere in the region.

SALEABLE MINERALS

Baked shale (scoria), formed by the in-situ burning of coal seams, is found in this area within the Mesaverde formation. This material is used for road maintenance and construction.

LOCATABLE

No mining claims are recorded in the herd area.

3.10 Land Status and Realty Authorizations: Approximately 96% of the herd area is public land in both surface and mineral estate. Among other uses, these lands have supported oil and gas production and infrastructure, for well over fifty years. Pipelines, compressor stations, gas plants, and meter stations authorized under Section 28 of the Mineral Leasing Act of 1920, as amended, have been a major part of this infrastructure.

Two formally designated right-of-way corridors cross the herd area. The Dragon Trail-Atchee Corridor runs Southwest-Northeast across the west side of the area, generally along County Road 23. The county road and segments of one or more natural gas gathering line are located within this corridor. The Park Canyon-Magnolia Corridor runs East-West across the south-central part of the area. Major segments of two interstate natural gas transmission lines are located within this corridor. These corridors, which were formally designated in the Record of Decision for the White River RMP, are each one mile wide, and are designated for the siting of buried linear facilities (e.g. natural gas transmission pipelines). Map H-5 in Appendix H shows the location of these corridors in relationship to the herd area.

3.11 Wildlife: Wildlife inhabiting the West Douglas herd area, and upon which management emphasis is placed, includes big game (mule deer and elk), blue grouse, and nongame species (e.g. raptors.)

Big Game: Horse distribution in this Resource Area is coincident with the seasonal ranges of both mule deer and elk.

The current herd area encompasses about 30% of the general winter range and 3% of the summer range (critical habitat) available to deer, and about 10% of the summer range (critical habitat), 8% of the severe winter range, and about 39% of the remaining winter range extent available to elk in Game Management Unit (GMU) 21. Critical habitat is a designation conveyed to seasonal habitats that, within a given big game herd area (Data Analysis Unit - DAU), are most limited in supply or are of inordinate value; the loss or deterioration of which would adversely affect the species.

Game Management Unit 21 (within which the herd area lies) is managed by Colorado Division of Wildlife (CDOW) as a trophy unit for mule deer. Population management is geared to improving herd structure and numbers. Suitable summer habitat in the herd area is confined to higher elevation Douglas-fir and mixed shrub associations on Oil Spring, Texas, and Rabbit Mountains. Local CDOW staff has noted declines in summer deer use of, and fall movements through, the Oil Spring/Texas Mountain complex over the last decade. Similar to developing notions of deer displacement by elk, it is possible that antagonistic social interactions between deer and horses over time have prompted avoidance of areas preferred by horses. Approximately 60% of the DAU's deer population winters at lower elevations in the Douglas, Missouri, and Evacuation Creek drainages in mature pinyon and juniper woodlands interspersed with sagebrush and/or deciduous browse shrublands.

Deer population objectives remain consistent with those authorized in the RMP in 1997 for the Douglas planning unit (i.e., about 9,385 on BLM surface). CDOW estimates that wintering deer populations are about 50% below objective levels in GMU 21, which translates to a desired increase of about 4700 deer on Public Lands within the Douglas GRA. At present, it is estimated that about 100 deer summer in the Oil Spring/Texas Mountain area and an average 1600 deer winter on ranges within the herd area.

Elk populations in GMU 21 are considerably higher than Colorado Division of Wildlife's (CDOW) long-term population objective (2-3 times higher). CDOW is currently reevaluating their plans for managing elk in Data Analysis Unit (DAU) E-10, which includes the Piceance (Game Management Unit (GMU) 22) and Douglas (GMU 21) basins. However, it is likely that CDOW will continue to manage for reduced numbers of elk in an effort to reach the established population objective.

Population density varies by season with fewer elk occupying the herd area Unit during the core winter months (about 100 from late November through February) and larger numbers supported spring through fall (about 160-200 animals). Critical summer range habitat for elk is similar in distribution to that of mule deer. Oil Spring and Texas Mountains provide suitable summer habitat for elk, but relatively few animals (about 50) summer in the herd area. Similar to the situation with deer, it is possible that horses have had some influence in behaviorally displacing big game use in the Texas and Oil Spring Mountain complex. Spring and fall elk numbers have increased such that localized forage/riparian conflicts with livestock and wild horses have begun to occur.

In reviewing and mediating grazing management concerns in the Twin Buttes allotment (report dated March 1998), the Colorado Department of Agriculture Section 8 team found that numbers of deer and elk at that time were having little apparent affect on the allotment's vegetation resources or the livestock operation. However, the team cautioned that if Game Management Unit 21's elk populations continued to expand concurrent with increased deer abundance, excessive forage use would be of concern. Deer populations have remained relatively constant in GMU 21 since 1998 ($\pm$8%), whereas elk have increased in annual increments approaching 3%. Overall, increased big game use attributable to elk (about 350 AUMs) has been compensated for by the current paucity of deer. Within the herd area, it is estimated that deer and elk consume an equivalent of 800 AUMs during the spring and summer and about 1800 AUMs during the dormant season—some 1650 AUMs below calculated forage use at objective levels. Achieving deer population objectives would add nearly 2000 AUMs of use to the herd area. CDOW is attempting to install innovative and aggressive methods to reduce elk populations in GMU 21 with the 2004 season.

Sources of free water are limited within the herd area. Larger, more persistent springs receive concentrated use by all large grazing animals on a seasonal or year-round basis. Heavy and persistent use has suppressed riparian development at these sites, degrading the downstream potential for riparian expression and suppressing vegetation-derived stability to the spring site and downstream channels and banks.

The mid to late winter/early spring period (December to early May) presents the greatest nutritional challenge for deer, in part, because the quantity and accessibility of forage is constrained by snow accumulations and the nutritional properties of available forage is low. Adequate forage volume and quality are essential for avoiding excessive and irreversible weight loss that results in excessive winter mortality and inadequate fetal development. During most winters, snow cover limits the effective foraging area available to deer. Under heavy snow conditions and under normal circumstances by February, deer are often relegated to south facing slopes on late winter ranges which offer moderated daytime temperatures and snow depth. Although forage volume is small, south-facing slopes promote early herbaceous emergence and minimal constraint in accessing forage.

In March, April, and May deer seek and make increasing use of emerging herbaceous forage (up to 40% grasses) particularly in bottomland and valley situations. Early spring (April-May) forage supplies and availability are essential for increasing the physical condition of deer recuperating from winter deficiencies in preparation for spring movements, accelerated fetal growth and development, and subsequent lactation. Similarly, summer diets (June-August) involve 60-90% herbaceous forage, primarily nutrient-rich forbs.

As forbs progress toward dormancy with the onset of warmer and drier summer conditions, their nutritional value declines, and management that prolongs the availability of succulent, high quality forage is of great advantage (e.g., riparian and mesic channels/valleys). As sites producing fresh herbaceous material decline through late fall, browse begins to assume a dominant and nutritionally superior dietary fraction. Throughout this period (August through December), deer must assimilate nutrients and energy in excess of need, thereby allowing for the production and storage of fat and protein reserves in preparation for winter. Nutritional assimilation is strongly enhanced by a diverse diet, regardless of season.

Although elk in GMU 21 are thought to rely principally on herbaceous forage throughout the year, seasonal patterns of forage use and nutritional need are similar to deer.

Blue grouse: The herd area encompasses a peninsula of higher elevation habitats extending north from the Douglas-Baxter Pass divide that support year-long blue grouse occupation (i.e., West Creek pasture and higher elevations of the East and West Texas Creek pastures). This range comprises about 14% of the potential blue grouse habitat available in Game Management Unit (GMU) 21. Grouse winter habitat and year-round distribution centers on the 1200 acres of mixed spruce and fir forest on Texas and Oil Spring Mountains. Habitats that support nesting, brood-rearing, and general summer and fall distribution are confined to about 2380 acres of surrounding mixed shrub and higher elevation (above 7200') sagebrush habitats (about 7% of those available in GMU 21).

After the first snows, blue grouse distribution is strongly associated with mature arboreal cover in spruce, fir, and pine; and diets consist primarily of conifer needles. Optimal nest and brood habitat consists of open mixed shrub stands with a conformation that provides effective horizontal and vertical concealment. Well developed herbaceous understory vegetation complements horizontal nest concealment and improves microclimatic (e.g. temperature, humidity, wind) conditions at the nest site. Both nest success and the survival of young broods is enhanced by well developed herbaceous understories beneath and among shrub canopies. Upland parks and adjacent drainage systems and spring sites produce persistent broadleaf herbage and insects favored and nutritionally required by hens and broods from April through August.

Collective use of herbaceous growth by livestock, horses, and big game on grouse nest and brood ranges affects the availability and utility of herbaceous plants used directly as forage, or as substrate for invertebrate prey, and the efficacy of herbaceous cover (i.e. grasses and forbs) as cover and concealment during the nesting and early-brood rearing period. Both early herbaceous growth (April-June) and residual stubble that persists from the previous growing season are thought to be important determinants in nest success and brood survival. Heavy grazing use typically prompts retreat of broods to more moderately utilized ranges, if available (i.e., concentrating birds and reducing the extent of suitable habitat).

Overall, herbaceous ground cover in potential grouse nest and brood habitats range in the vicinity of Texas and Oil Spring Mountains is ineffective as supplemental cover in terms of residual height and horizontal ground cover. In those areas with persistent spring through fall grazing by elk and horses, little interstitial (i.e., between shrub crowns) ground cover remains on bench, ridgeline, and basin habitats through the summer brood period and into the following nesting season. In particular, with water developed for seasonal livestock use, the woodland chainings on the east side of Texas Mountain have assumed heavy and persistent growing and dormant season use by horses. Although growing season use by horses and elk likely plays an influential role in preventing improvements in herbaceous expression, BLM believes the local condition may be related principally to advancing age and decadence within these shrub stands.

Raptors and Non-game Wildlife: Raptor nesting activities are dispersed throughout the project area. Nesting records are heavily skewed toward the more conspicuous cliff-nesting species. Golden eagles and red-tailed hawks nest predominantly on cliff faces found throughout this region. Systematic or extensive inventory for the less obvious, but probably more common woodland nesting species, including Cooper's and sharp-shinned hawks, northern pygmy, saw-whet, and long-eared owls, is lacking and few nests have been recorded relative to the extent of available habitat. Relatively small and dispersed forest tracts of spruce-fir and aspen can support inordinately high number of breeding woodland raptors.

Nesting records for potentially affected hawks, eagles, and owls indicate that nest attempts (initiated as early as March) are largely (85%) complete and young fledged by early August.

The maintenance of raptor populations is largely dependent on its small mammal and bird prey base. Nongame animal populations are relied upon to provide sufficiently abundant and diverse prey to satisfy the requirements of these predators. Under any given circumstance, nongame populations are typically more diverse and abundant when the habitat's herbaceous component, as substrate for cover or forage, is better expressed in terms of height, ground cover, and compositional and structural diversity. Conversely, progressive declines in the density and height of herbaceous ground cover normally detract from the abundance and richness of nongame bird and small mammal communities.

The non-game bird community throughout the herd area's uplands is considered representative and complete with no obvious deficiencies in composition. Over 200 species of nongame birds have been recorded in predominant habitats widely represented within the West Douglas herd area (e.g., pinyon-juniper, mountain shrub, sagebrush). Species associated with riparian/wetland and spruce/fir forest communities are confined to limited acreage in mainstem and West Douglas Creek (forming the eastern boundary of the herd area) and the tops of Texas and Oil Spring Mountains, respectively.

Small mammal populations are poorly documented; however, the 20 or so species that are likely to occur in this area are widely distributed throughout the Great Basin or Rocky Mountain regions. Even though several species have relatively specialized habitat affiliation (i.e., shrubland with well developed understories), all species display broad ecological tolerance. No narrowly distributed or highly specialized species or subspecific populations are known to occur in the herd area.

Aquatic Wildlife: Although an important Colorado River cutthroat trout fishery exists in the adjacent East Douglas watershed, there are no perennial systems capable of sustaining a cutthroat fishery in the herd area. Perennial reaches of the West Douglas and mainstem Douglas channels are known only to support small numbers of speckled dace, an abundant and widely distributed nongame species. Beaver have intermittently colonized Douglas Creek, as well as a small portion of West Douglas Creek near Sand Draw. These beaver ponds and their lengthy backwaters are exploited by small, but well distributed breeding populations of mallard, green-winged teal, and spotted sandpiper.

3.12 Migratory Birds

A large array of migratory birds fulfills nesting functions throughout the herd area's woodland and shrubland habitats during the months of May, June, and July. Species associated with these shrubland and woodland communities are typical and widely represented in the Resource Area and region. Those bird populations associated with this Resource Area's shrublands and pinyon-juniper identified as having higher conservation interest (i.e., Rocky Mountain Bird Observatory, Partners in Flight program) are listed in Table 3-1 below. These birds are typically well distributed in extensive suitable habitats. Species classified with the forest types (aspen/fir) are best associated with mesic aspen stands in this Resource Area—a habitat type that does not occur within the herd area. There is no reasonable expectation for these birds to be well represented in the herd area's small and disjunct fir stands.

Table 3-17: Birds with High Conservation Priority by Habitat Association in Herd Area

	Habitat Association			
	Sagebrush	**Pinyon-juniper**	**Mountain shrub**	**Aspen/fir**
Birds	Brewer's sparrow green-tailed towhee	gray flycatcher gray vireo pinyon jay juniper titmouse black-thr gray warbler violet-green swallow	blue grouse common poorwill Virginia's warbler	broad-tld hummingbird red-naped sapsucker purple martin Cordilleran flycatcher MacGillivray's warbler

Those portions of Douglas and West Douglas Creeks within the herd area boundary also support a strong contingent of riparian-affiliated (willow and tamarisk) neo-tropical migratory birds, including: yellow warbler, yellow-breasted chat, blue grosbeak, and lazuli bunting. Although uncommon and sporadic breeding species at this time, willow flycatcher and common yellowthroat are expected to increase in abundance and distribution as these channels continue to develop more stable and extensive willow and sedge dominated components.

3.13 Threatened and Endangered Animals: No animals listed, proposed, or candidate under the Endangered Species Act are known to make appreciable use of the herd area.

Colorado River pike-minnow

The endangered pike-minnow occupies the lower White River below Taylor Draw dam. The White River and its 100-year floodplain below Rio Blanco Lake have been designated as critical habitat for the fish. The West Douglas herd area in its various configurations is located in the Douglas, Cottonwood, and Evacuation Creek watersheds, all of which drain to the White River below Taylor Draw dam. The river is separated varying distances from affected portions of the watershed by ephemeral or intermittent drainage systems, as follows:

Douglas Creek watershed (65% of herd area): 6 miles
Cottonwood Creek watershed (15% of herd area): 7 miles
Evacuation Creek watershed (20% of herd area): 22 miles

Management of the herd area within the constraints of the Bureau's Standards for Rangeland Health would pose no reasonable threat of direct or indirect influence on water quality or channel/floodplain condition or function in those portions of the White River regarded as critical habitat.

Bald eagle

The White River corridor is the hub for seasonal bald eagle use of the lower White River Valley. Particularly during the later fall and winter months, up to several dozen bald eagles make regular foraging use of open upland communities south of the river, but these forays in search of, primarily, big game and livestock carrion and small game (e.g., rabbit and hare) are dispersed and opportunistic. Concentrated diurnal use and nocturnal roosting functions during the winter and summer use attributable to a nest site near the Utah border are associated with the river corridor's cottonwood stands, a minimum of five miles north of the herd area boundary.

Bald eagle use associated with the lower White River valley, especially during the fall and winter use period, is loosely linked to populations of big game and small game as a source of nutrition, but the availability of winter forage is largely independent of management associated with the herd area.

Mexican spotted owl

BLM is aware of only 2 records of Mexican spotted owl in the vicinity of this Resource Area: one unpaired male in Dinosaur National Monument, CO in the summer of 1996 and 1997, and a single bird in northeast Utah (upper Book Cliffs; fall 1958). Suitable habitat consists of arid canyonlands, or mature to old-growth mixed conifer stands, particularly in proximity to deep rocky canyons. In the course of preparing state-wide Biological Assessments for BLM's land use plans, contractors are presently evaluating the suitability of Mexican spotted owl habitat within this Resource Area. Initial indications are that potential suitable habitat is narrowly confined to steep, north-facing canyons supporting mixed conifer forests along the White-Colorado River divide. About a dozen conifer stands high in the headwaters of East Douglas Creek appear to satisfy accepted parameters of suitable habitat. These habitat parcels are located a minimum of two miles south of the current herd area boundary. Management of horses within the West Douglas herd area has no direct tie to the suitability or utility of potential Mexican spotted owl habitat in this Resource Area.

Sensitive Species

A number of animals are classified as sensitive by the BLM. These species are thought to be especially susceptible to population-level influences. It is the policy of BLM to identify these species on a state-by-state basis and ensure that BLM actions do not contribute to their becoming candidate for listing under the Endangered Species Act. Sensitive species that may occupy the herd area include the northern goshawk, greater sage grouse, Townsend's big-eared bat, and fringed and Yuma myotis. Similarly, the Colorado Natural Heritage Program has identified a number of nongame species that, by merit of population vulnerability, may warrant special management attention or concern. Species that inhabit areas within or near the West Douglas herd area include the gray vireo and sagebrush vole. These species will not be discussed separately in the Environmental Consequences Section (Section 4), but will be evaluated, where applicable, in conjunction with nongame terrestrial wildlife discussions.

Northern goshawk

The northern goshawk is normally associated with mature, higher elevation coniferous and aspen forests. Goshawk subsist primarily on a diet of medium-sized mammals and birds (e.g., grouse, ground and tree squirrel, rabbit).

The BLM has no record of goshawk nesting activity in the herd area, but based on experience in the adjacent Piceance Basin, the goshawk probably nests sparingly (e.g., 1-3 pair) in the southern half of the herd area in mature pinyon-juniper woodlands (above 6500') and spruce-fir forests. Although never common, an influx of migrant goshawk appears to elevate densities in this Resource Area during the winter months.

Outside of more heavily developed natural gas fields within the herd area (about 29% of area within current herd area extent), the extent and character of mature pinyon-juniper woodlands and other forest types within the herd area as goshawk nest habitat are believed static. Since much of the birds' prey base appears to fluctuate around long term means (e.g., blue grouse) or are relatively independent of prevailing land use activities (e.g., red squirrel), it is presumed that local breeding and wintering populations of northern goshawk are also stable. However, because reductions in herbaceous ground cover, riparian damage, and deleterious shifts in native bunchgrass composition, attributable to collective ungulate use (past and present), suppress the abundance and availability of potential prey, it is likely that annual goshawk reproduction and winter survival are, to an indeterminate degree, responsive to grazing effects.

Greater sage grouse

Small numbers of sage grouse have been sporadically encountered in larger Wyoming big sagebrush parks on the north and northwest portions of the herd area, but there appears to be no consistent use or occupation of these habitats. These areas are not associated with any known strutting grounds and the habitat offers few attributes that would be expected to serve summer/nesting functions.

Townsend's big-eared bat, and fringed and Yuma myotis

Although the distribution and ecology of these bats are poorly understood, limited collections have documented their presence from western Colorado's semi-desert shrublands, woodlands, and canyonlands. These bats use caves, mines, and unoccupied buildings for night, nursery, and hibernation roosts. The big-eared bat and Yuma myotis, in particular, prefer to forage over riparian habitats.

Although these bats likely occur in small numbers in or near the herd area, habitat suitability may be sharply constrained by the paucity of suitable night, nursery, and hibernation sites. Although rock outcrops suitable for temporary daytime roosts are well distributed in the herd area, and relatively extensive riparian communities are available in West Douglas and mainstem Douglas Creeks, there are no underground

mines or known caves, and unoccupied buildings are extremely limited in or within several miles of the herd area.

Gray vireo

The gray vireo is associated with this Resource Area's Utah juniper-black sagebrush ranges principally below 6000' in elevation. In higher elevation woodlands with more extensive canopies, and with the appearance of pinyon pine and the congeneric plumbeous vireo, gray vireo distribution appears to abruptly cease. Point-count surveys conducted by BLM from 1996-2000 in the core of occupied habitat indicate stable minimum breeding populations of about 13-15 pairs per section. The northern boundary of the West Douglas Herd Area lies on the southern periphery of occupied gray vireo habitat such that the herd area encompasses less than 10% of potential habitat within the Resource Area.

As insectivores, it is reasonable to assume that grazing practices that significantly reduce herbaceous ground cover during the nesting season, particularly after the hatch, would reduce vireo nest success and annual recruitment of young. This allotment's current grazing regimen in vireo habitat allows for complete growing season rest (cattle removed by April 1) or effective redevelopment of herbaceous ground cover (removed by May 1) three of every four years. In the remaining year, cattle are removed by about May 20, which would generally allow for modest redevelopment of herbaceous understories during brooding and post-fledge in June and July. It is unlikely that these cattle grazing practices would have any contributory effect on the depression of breeding density or nest success of gray vireo in the herd area, and should prompt long term improvements in ground cover density and height and increase the proportion of perennial grasses and forbs in community composition.

Although there is a history of horses occupying these lower elevation ranges, there has been no substantive use of these gray vireo habitats by horses since a BLM gather 15-20 years ago. There appears to be no tendency for horses to use these ranges at sustained herd area populations under 150 horses.

Sagebrush vole

The sagebrush vole occurs locally in sagebrush regions of the Great Basin and northern Great Plains. In Rio Blanco County, the sagebrush vole is associated with sagebrush and mixed shrub – perennial bunchgrass habitats from 6000-9000', which involves some 385,000 acres of BLM surface in the White River Resource Area. Oil shale baseline inventories in the mid-70s suggest that the vole is a widely distributed, but relatively uncommon component (1-2%) of this Resource Area's upland shrub small mammal community, occupying these habitats at minimum densities of about 1 per hectare.
It is presumed that sagebrush voles are distributed throughout the herd area's 10,000 acres of upland sagebrush and mountain shrub communities and perhaps at lower densities in its 43,000 acres of saltbush and greasewood types.

Voles are active throughout the winter months beneath the snowpack; sagebrush leaves and cambium being the primary constituents of their winter diet. The voles reproduce during the spring and early summer months; their diverse summer diet consisting of flowers and leaves of virtually all green plants including grasses, forbs, and shrubs.

Populations throughout the West have been found to fluctuate dramatically in response to winter severity and growing season moisture. Although the vole has been found to be most abundant on shrublands with well-developed bunchgrass understories, it has also been found in more xeric sites, including sandy greasewood flats in Moffat County.

There is no information available with which to quantify grazing-related influences on the vole in this area. However, because the majority of the allotment meets BLM's Standards and Guides, it is believed that habitat utility and continuity remains largely intact. Stronger grazing-related effects are likely confined to those bottomland and basin situations in closer proximity to water where habitats have been subjected to heavy or prolonged ungulate use or those that have undergone deleterious shifts in community

composition. In these situations, it is expected that vole density would be considerably lower than that supported by adjacent upland sites and certainly lower than potential. Reductions in residual herbaceous cover outside periods of snowpack likely reduce animal concealment and increase rates of mortality by predation, whereas adverse alterations in community composition likely reduces nutrition-based attributes such as survival of young and winter survival.

3.14 Threatened and Endangered Plants: Limited inventories have been conducted for rare and endemic or rare and BLM sensitive species within the herd area. Many of these sensitive species in the region are endemic to the Green River geologic formation. This formation is limited to the Uintah Basin of Utah and the Piceance Basin/Roan Plateau of Colorado. Exposures of the Parachute Creek Member of the Green River Formation along Banta and Gilsonite Ridges (both outside the herd area) provide the habitat for five sensitive plant species, two of which are rare throughout their range of distribution. The other three are rare in Colorado but more common in the Uintah Basin of Utah. The following species have suitable habitat in the Herd Area: *Penstemon grahamii* (PEGR) and *Penstemon albifluvis* (PEAL). Both of these are category 1 Candidate Species for listing as threatened or endangered, and occur only on Raven Ridge (north of the herd area) in Colorado, and along the White River in eastern Utah. Some suitable habitat for both species occurs along the White River in Colorado just west of Raven Ridge, but no reports of either species has been documented there. *Cryptantha rollinsii* (CRRO), *Eriogonium ephedroides* (EREP), and *Parthenium ligulatum* (PAL1) occur on exposures of the Parachute Creek Member and have been found along the Utah state line to the west of the herd area. Potential habitat also occurs in the Green River formation within and adjacent to the herd area on Texas Mountain, Oil Spring Mountain, Gilsonite Hills, Rabbit Mountain, Park Mountain and perhaps in Lower Evacuation Creek. Oil Spring Mountain Wilderness Study Area maintains a No Surface Occupancy Stipulation on all sites where rare/protected species exist.

Table 3-18: Special Status Species

Species	Common Name	Federal Status *	State List**	Area
Eriogonum ephedroides	Ephedra Buckwheat	3C	2	Raven Ridge, West of Rabbit Mountain
Penstemon albifluvis	White River Penstemon	1	1	Raven Ridge, Banta Ridge
Penstemon grahamii	Graham Beardtongue	1	1	Raven Ridge, Banta Ridge
Parthenium ligulatum	Ligulate Feverfew	3C	2	Raven Ridge, Gilsonite Hills
Cryptantha rollinsii	Rollins Cat's Eye	-	2	Raven Ridge

**Federal Status: 1-Candidate for formal listing, 3C-Former candidate for federal listing.*
***State List: List 1-Federal threatened or endangered plant species and species that are rare throughout their range; List 2- Plant species that are rare in Colorado but relatively common elsewhere within their range.*

3.15 Recreation: The West Douglas Herd Area is within the White River Extensive Recreation Management Area (ERMA). BLM custodially manages the ERMA to provide for unstructured recreation activities such as hunting, dispersed camping, hiking, horseback riding, wildlife viewing and off-highway vehicle use. The herd area is also located within Game Management Unit (GMU) 21, a draw trophy mule deer area, which is managed by the Colorado Division of Wildlife. The fact that the GMU is a draw area for deer is an important distinction as hunters may spend a considerable amount of time and effort to be drawn in such an area. Therefore, it could be implied that this particular hunting experience could be one chance in a lifetime.

The recreation use of the herd area is low and tends to peak in use during October and November big game hunting seasons. Although no hard traffic or other scientific visitor counts exist, the general lack of old campsites and trash as well as anecdotal evidence from recreation field staff presence indicates that very little recreation use occurs within the herd area.

3.16 Visual Resources: The West Douglas Herd Area contains all four Visual Resource Management (VRM) classes which have varying management objectives:

VRM CLASS I: Approximately 7,608 acres (6%) of the herd area are classified as VRM Class I. These areas are coincident with the Oil Springs WSA. The VRM class I management objective is preservation of the characteristic landscape. This class provides for ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention. VRM class I management objectives are being used to support Wilderness Study Area (WSA) management objectives. It is important to note that WSAs may not have exceptional scenic values as the intent of VRM is to preserve the current visual character to the WSA. Currently, the VRM class I objective is being met.

VRM CLASS II: Approximately 13,902 acres (11%) of the herd area are classified as VRM Class II. The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the line. Form, color and texture found in the predominant features of the characteristic landscape. VRM Class II areas are found adjacent to the Oil Springs WSA in the southeastern portion of the herd area and within the Cottonwood Creek drainage in the northwestern portion. This objective is currently being maintained but increased oil and gas exploration in the Cottonwood Creek area will make the VRM Class II objectives difficult to maintain if current trends in oil and gas activities continue.

VRM CLASS III: Approximately 17,082 acres (14%) of the herd area are characterized as VRM class III. The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant features of the characteristic landscape. Class III visual objectives are being met at this time.

VRM CLASS IV: Approximately 85,297 acres (68%) of the herd area are designated as VRM Class IV. The objective of this class is to provide for management activities which require major modification of the existing landscape character. The level of change to the characteristic landscape can be high. These management activities may dominate the view of the casual observer and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance and repeating the basic elements of form. Line, color and texture found in the characteristic landscape. Currently, the class IV visual objectives are being maintained.

3.17 Cultural Resources:

The Twin Buttes grazing allotment includes areas containing some of the highest cultural resource site densities in the White River Resource Area. Sites are associated with prehistoric transportation corridors, resource acquisition localities, Formative stage horticultural and occupation localities, historic transportation routes, mining and cattle ranching. The allotment also includes portions of the Canyon Pintado National Historic District, which contains numerous examples of Fremont rock art, listed on the National Register of Historic Places. Inventories in this allotment indicate a relatively high site density along with substantial favorable areas for prehistoric site locations. Previous inventories indicate that sites are mainly limited to areas adjacent to water, vantage point localities, in Pinyon/Juniper forest - especially with southern exposure, along transportation corridors, and on slopes of less than 30% (Conner 1998, 1987, Hauck 1991, 1997). The highest site densities appear to occur in the north while the upland areas to the south received less prehistoric use, although much of this pattern may be an artifact of the positioning of inventories. Much of allotment contains steep (over 30%) slopes and is distant from water sources, while the majority of the land surfaces within this allotment are the more favorable Pinyon-Juniper ridges, bottomlands and steep cliff (rockshelter) areas. The highest site densities occur in the southwestern portion of the allotment in the West Texas Creek pasture. Site densities in this area west to Evacuation Creek may exceed 100 sites per section. It is expected that this allotment will contain mainly

ephemeral lithic scatters and isolates in the dryer and more upland areas, while the lower ridges and valley bottoms will contain the more substantial occupation sites. The majority of the allotment should contain an average of eight eligible sites per section. Using these figures and extrapolating against the entire allotment area, it is estimated that a total of 3,720 cultural properties are located within the allotment boundaries, of which some 2,000 are eligible sites.

The Bull Draw grazing allotment is located adjacent to the Twin Buttes grazing allotment and like the Twin Buttes allotment includes areas containing some of the highest cultural resource site densities in the White River Resource Area. Sites are found associated with prehistoric transportation corridors, resource acquisition localities, Formative stage horticultural and occupation localities, historic transportation routes, mining and cattle ranching. The allotment also includes portions of the Canyon Pintado National Historic District, containing numerous examples of Fremont rock art, which is listed on the National Register of Historic Places. Inventories in this allotment indicate a relatively high site density along with substantial favorable areas for prehistoric site locations. Previous inventories indicate that sites are mainly limited to areas adjacent to water, vantage point localities, in pinyon/juniper forest - especially with southern exposure, along transportation corridors, and on slopes of less than 30% (Conner 1998, 1987, Hauck 1991, 1997). The highest site densities appear to occur in the north while the upland areas to the south received less prehistoric use, although much of this pattern may be an artifact of the positioning of inventories. It is expected that this allotment will contain mainly ephemeral lithic scatters and isolates in the dryer and more upland areas, while the lower ridges and valley bottoms will contain the more substantial occupation sites. Highest site densities are expected to be in the north and northeast portions of the allotment, particularly in Douglas Creek and the Canyon Pintado National Register District.

3.18 Paleontology: The herd area is underlain by four formations, the Mesa Verde, the Wasatch, the Parachute Creek unit of the Green River Formation and the Garden Gulch/Douglas Creek unit of the Green River Formation. The BLM has classified the Mesa Verde, Wasatch and Parachute Creek formations/units as Category I fossil bearing formations. This means that these units are of considerable scientific interest due to the presence of a wide variety of vertebrate fossils including dinosaurs, a wide range of mammals including what may be some of the earliest known forms and exceptional preservation of invertebrates, especially insects and plants. The Douglas Creek/Garden Gulch member of the Green River formation is currently classified as a Category II formation meaning that its fossil bearing potential is currently not well documented or understood.

Quaternary alluviums are found in the bottoms of drainages, especially Douglas Creek and some of the larger tributaries. Quaternary alluviums are not considered fossil bearing and any fossils that might happen to occur would be likely regarded as “float” or remains that are largely out of context and of somewhat limited scientific value.

3.19 Access and Transportation: Since the herd area is over 96% contiguous federal land, private land obstacles to public access are practically non-existent. Vehicle travel routes throughout the herd area are well established via county roads, BLM roads, and oil and gas development roads. The road density is approximately 3.2 miles of road per square mile in the northern portion, but goes up to 4.8 miles per square mile in the central portion of the herd area. This is due to the large amount of oil and gas development which has occurred in these areas. The road density in the southern portion of the herd area is only about 1.3 miles per square mile, with no developed roads within the WSA. Map H-4 in Appendix H shows where primary, secondary, and other (mostly BLM or oil and gas access routes) are within the herd area.

3.20 Forest Management: The Forest Management Program, within the herd area, consists of timberland management and woodland management. Approximately 1,196 acres are covered by Timberlands. The predominate tree species is Douglas-fir. Timberland management focuses on wood products measured in board feet and includes lumber, timbers and house logs. There are approximately 51,788 acres of woodland, with the predominate species consisting of pinyon, and Utah juniper. Woodland management

focuses on products generally not measured in board feet and includes firewood (cords), juniper posts and poles. The White River ROD/RMP set a limit of approximately 20 acres for clearcut, 70 acres of selective cut and 1,500 posts and poles for commercial harvest within the Douglas/Cathedral Geographic Reference Area. The West Douglas Herd Area makes up approximately 1/3 of the geographic reference area. Non-commercial harvest limits are restricted to dead and down, with the exception of specifically marked green tree areas. The forestry program offers the opportunity to remove vegetation through sales or free use that would otherwise be removed by other manipulation techniques (chaining, dozing, prescribed fire).

The Conditions of Approval within Appendix B, White River ROD/RMP, for Forest Stand Treatments would continue to be applied. Additional restrictions to forest treatments would be identified during preparation of an Environmental Assessment prepared prior to authorizing a proposal.

3.21 Socio-Economics:

Population: Rio Blanco County is located in north western Colorado and is predominantly rural. Over the past 30 years its population has grown slowly relative either to the state or the nation reaching a high of 7,153 in 1983. Population slowly declined and stabilized at 6,011 by the 1990 estimate. The 2000 census found the Rio Blanco population as 5980. (See Charts 3-1 and 3-2)

Chart 3-1: Rio Blanco Population 1970-2000

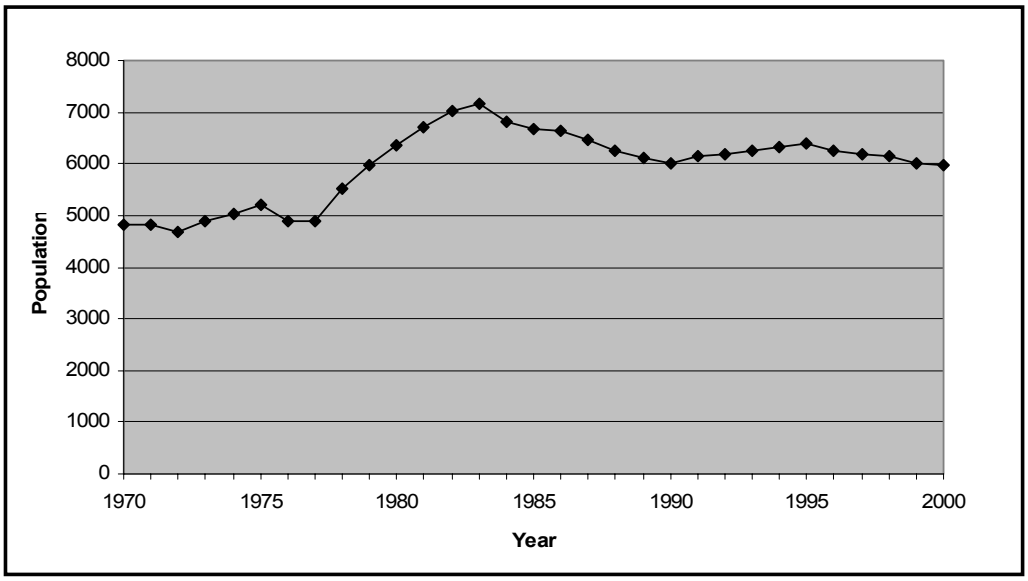
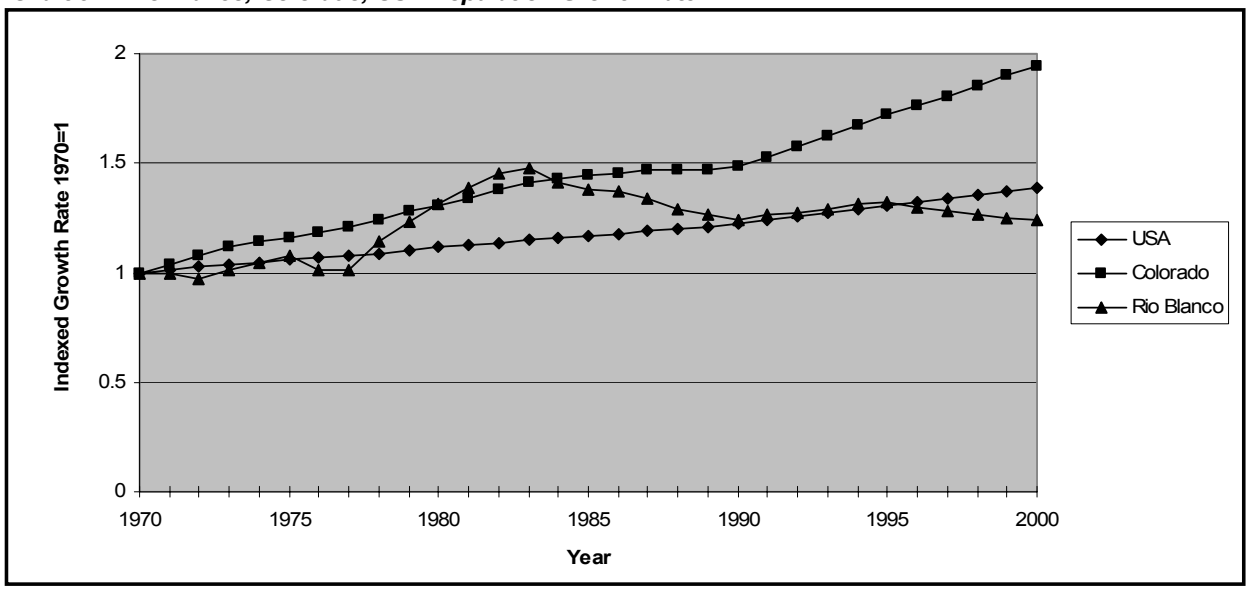
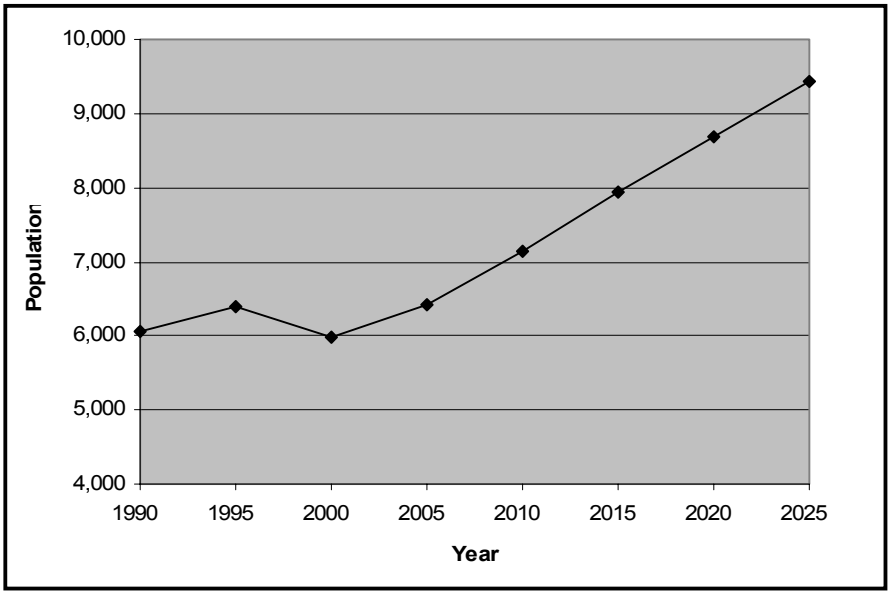


Chart 3-2: Rio Blanco, Colorado, USA Population Growth Rate



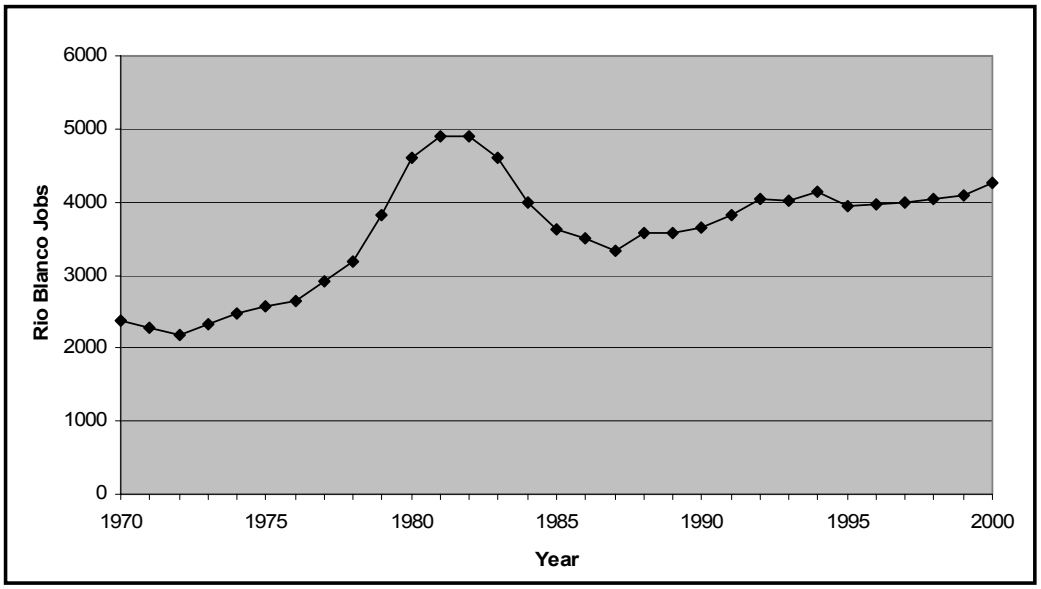
The population of Rio Blanco County is projected to grow at an annual rate of 1.94 percent until 2025 when it will reach 9,740. The county will continue to be largely rural with an increasingly older population. See Chart 3-3.

Table 3-3: Rio Blanco Population Projection to 2025



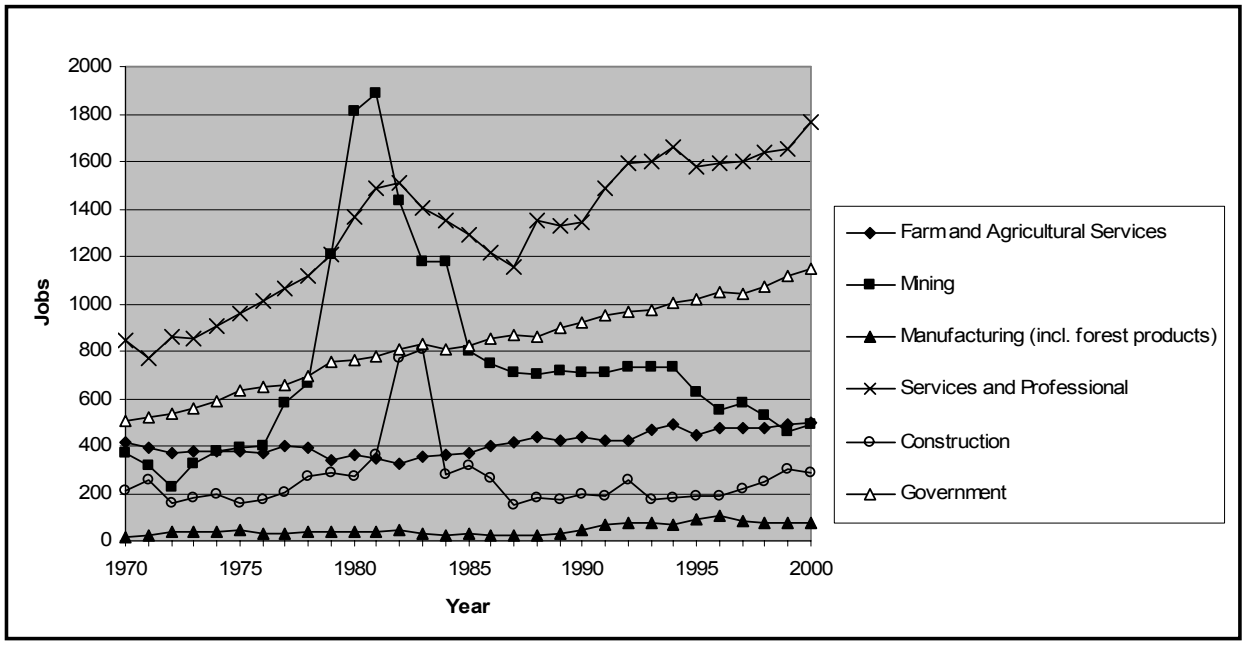
Employment: Rio Blanco employment reached 4253 jobs in 2000. This is an increase of 1879 over the 1970 estimate of 2374 but a decrease of almost 644 jobs from the 1981 high of 4897. Employment has been largely stable since 1992. (Chart 3-4)

Chart 3-4: Rio Blanco Employment 1970-2000



The year 2000 employment estimate shows the Rio Blanco economy dominated by the service sector followed by government. Mining, the dominant sector in the late 70s and early 80s, has declined precipitously in terms of employment from a high of 1890 jobs in 1981 to a recent 487 in the year 2000. Oil and gas exploration, a sub sector of mining provided 211 jobs in the year 1999. Agriculture has remained fairly stable over the past 3 decades providing 406 jobs in 1970 and 365 jobs in 2000. (Chart 3-5)

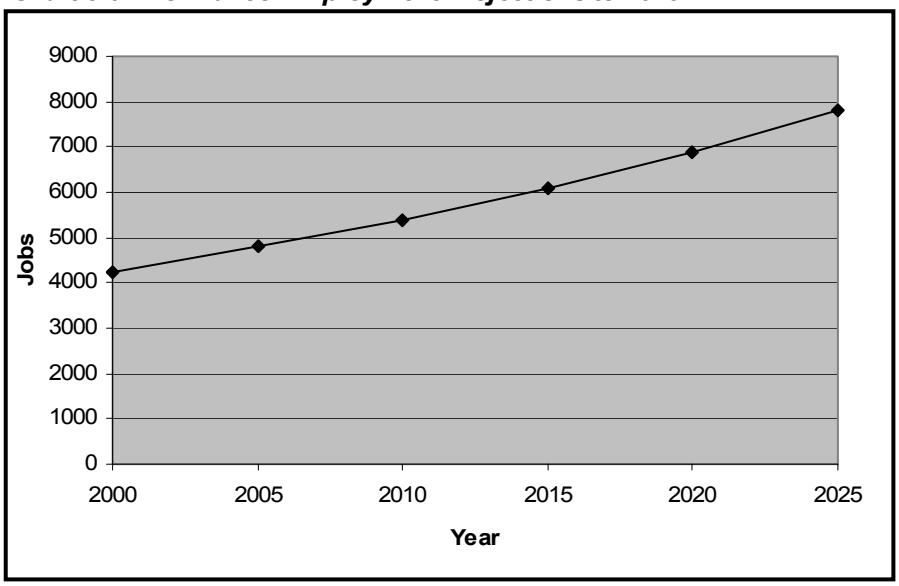
Chart 3-5: Rio Blanco Employment by Major Sector 1970-2000



1999 estimates find tourism to be responsible for 359 or 9 percent of Rio Blanco jobs. The majority of these jobs are located in retail trade or the service sector.

Employment in Rio Blanco County is projected to grow at an annual rate of 2.48 percent until 2025 when it is estimated to reach 7861. Over this time period the unemployment rate is projected to average approximately 5 percent. Jobs will increasingly occur in the service sector and be dependant on the growing recreation/tourism industry. See Chart 3-6

Chart 3-6: Rio Blanco Employment Projections to 2025



Income: Rio Blanco annual per capita income has increased from $4013 in 1970 to $26039 in the 2000 estimate. The 1970 figure equals $17810 in 2000 inflated dollars. Personal income is dominated by the Mining Sector which produced $58.173 million in year 2000. Its oil and gas sub sector produced $30.893 million. The Mining sector is followed by Non- Labor Income (see below) and Government $32.79 million as income producing sectors. Services $11.024 million and Agriculture (see below), considering their importance in employment, produce relatively low levels of income. (Chart 3-7 and 3-8).

Chart 3-7: Rio Blanco Per Capita Income 1970-2000 in year 2000 Dollars

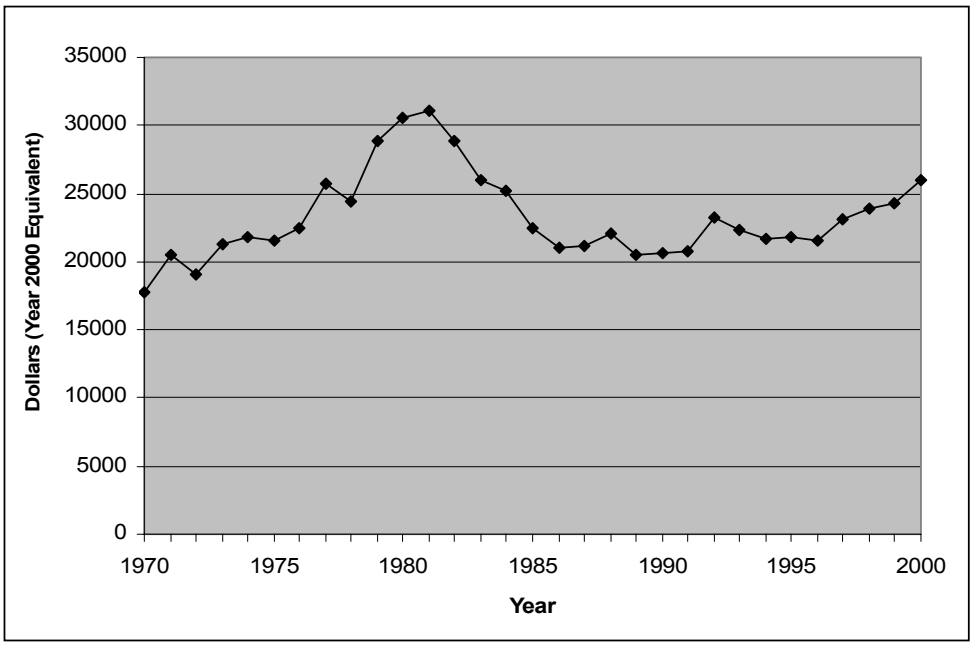
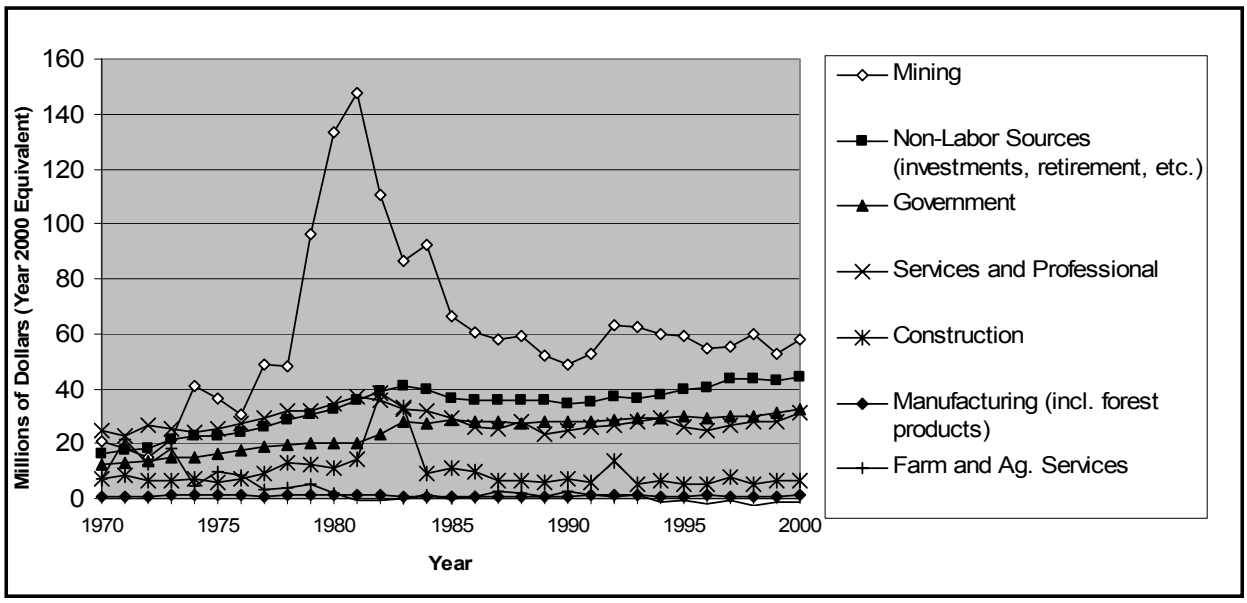
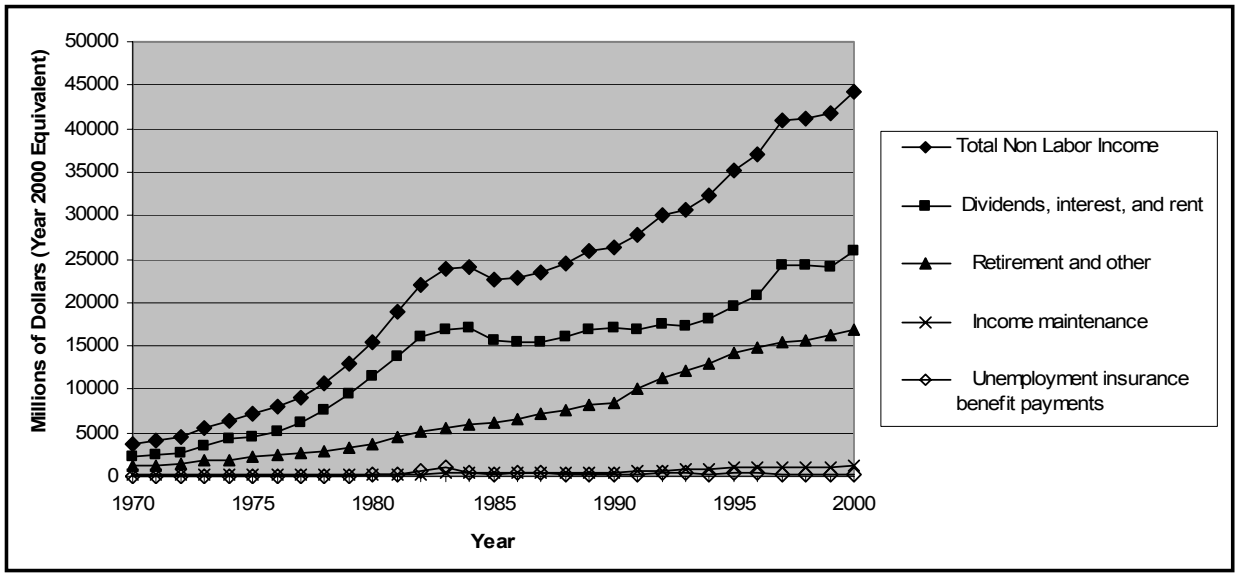


Chart 3-8: Rio Blanco Personal Income By Sector in Year 2000 Dollars



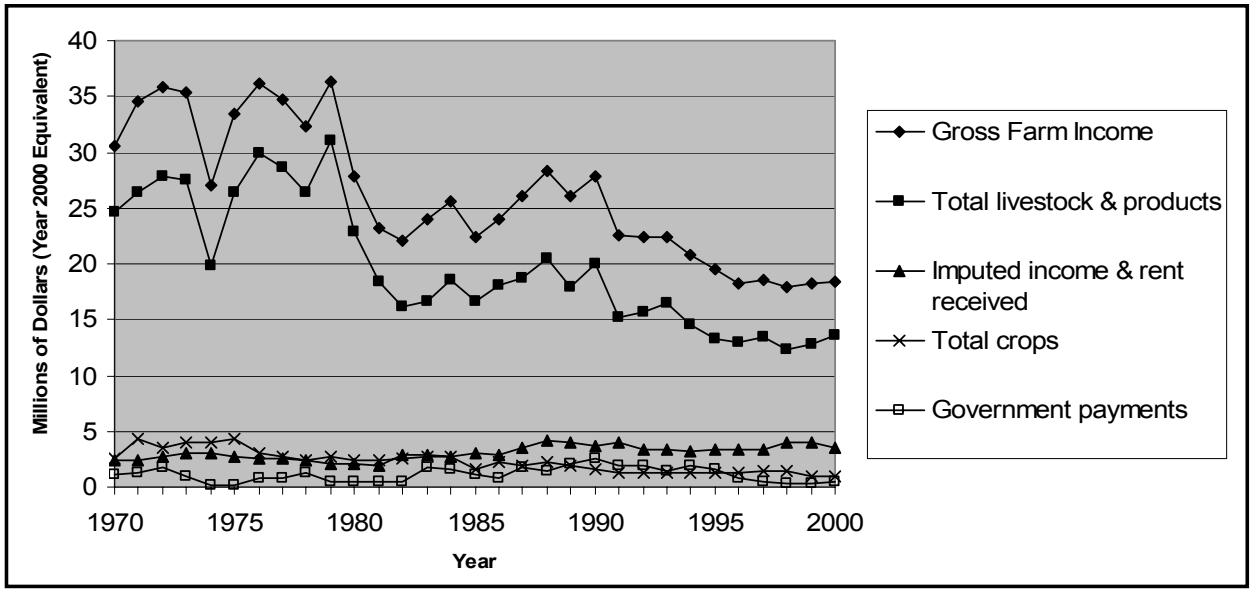
Non-labor income is divided into two major categories which include: 1) Dividends, Interest, and rent; and 2) Transfer payments. Transfer payments include retirement age influenced income, income maintenance (welfare), and unemployment insurance benefits. Rio Blanco Non Labor Income totaled $44.173 million in the year 2000 and is dominated by Dividends, Interest and Rent producing $25.921 million. In year 2000 transfer payments produced $18.252 million. (Chart 3-9)

Chart 3-9: Rio Blanco Non Labor Income 1970-2000 In Year 2000 Dollars



Rio Blanco gross farm income has declined from a high in the mid to late 1970s of $30.526 million (year 2000 inflated dollars) to $18.418 million in year 2000. Livestock dominates the agriculture sector producing $14.469 million of the year 2000 total. When expenses are added to gross farm income it produces net farm income and for Rio Blanco County this figure was $-2.358 million. In other words agricultural expenses are greater than its income. (Chart 3-10)

Chart 3-10: Rio Blanco Farm Income 1970-2000 in Year 2000 Dollars



Big game hunting is an important income generating activity in Rio Blanco County. Big game management units with major acreages in Rio Blanco were estimated to draw more than 31,000 hunters in year 2001 (see Table 3-19). Total big game hunting expenditures for these game management units are estimated to have been over $33 million. A significant but un-estimated proportion of these expenditures were spent locally.

Table 3-19: 2001 Big Game Hunting in Rio Blanco

GMU	Hunters	Estimated Expenditures
10	663	$708,788.37
11	3635	$3,886,041.82
12	4386	$4,688,907.69
21	1791	$1,914,690.76
22	3914	$4,184,310.23
23	5246	$5,608,301.35
24	3591	$3,839,003.08
30	818	$874,493.04
31	1597	$1,707,292.65
211	3688	$3,942,702.13
231	1755	$1,876,204.51
Total	**31084**	**$33,230,735.64**

By the Year 2025 Rio Blanco Total Personal Income and Per Capita Personal Income are projected to rise substantially (in current dollars) to $1039 Million, and $106,727 respectively (Table 3-20). Much of this projected rise however is due to a long term inflation rate assumed here to be 4 percent. Year 2000-2025 projections using deflated (year 2000) dollars are shown in Chart 4.4 & 4.5. Rio Blanco deflated Total Personal Income is seen to rise from$167 Million to $403 Million while Per Capita Personal Income is estimated to rise from $27,825 to $38,000.This estimated "real" rise in income is dependant on increasing oil and gas employment income, and greater demand for recreation related tourism. Farm income will continue to decrease in importance relative to the other sectors of the economy. See Charts 3-11 and 3-12.

Table3-20: Undeflated Personal Income Components for Rio Blanco County

	Year					
Variable	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**
FARM EARNINGS	-2.48	-2.56	-2.41	-2.22	-2.12	-2.09
NON-FARM EARNINGS	142.19	181.03	267.08	391.24	582.94	859.88
Non-Farm Earnings Annual % Change	14.68	4.98	8.09	7.93	8.3	8.08
PROPERTY INCOME	26.14	33.49	45.71	68.86	105.68	156.19
Property Income Ann Pct Ch	2.6	6.01	6.42	8.54	8.94	8.13
TRANSFER PAYMENTS	18.17	23.74	30.66	38.92	52.82	71.7
Transfer Payments Ann Pct Ch	3.14	5.34	5.25	4.89	6.3	6.3
ADJUSTMENT FOR RESIDENCE	-9.96	-9.95	-9.95	-9.95	-9.95	-9.95
LESS: SOC SEC CONTRIB.	6.57	8.62	12.34	17.95	25.67	36.2
Soc Sec Contrib. Ann Pct Ch	12.51	4.41	7.43	7.78	7.42	7.11
TOTAL PERSONAL INCOME	167.48	217.12	318.75	468.89	703.7	1039.53
Total Personal Income Ann Pct Ch	11.2	5.53	7.98	8.03	8.46	8.12
POPULATION	6019	6732	7496	8272	9026	9740
Population Ann Pct Ch	-1.18	2.21	2.17	1.99	1.76	1.53
POPULATION 65 AND OVER	675	714	788	909	1082	1258
Population 65+ Ann Pct Ch	0.3	1.65	1.99	2.9	3.55	3.06
PER CAPITA PERSONAL INC.	27825.23	32252.66	42522.72	56684.32	77963.8	106727.8
Per Capita Personal Inc. Ann Pct Ch	12.53	3.25	5.68	5.92	6.58	6.48
EARNINGS PER JOB	35710.04	42147.35	51207.57	64795.52	83849.61	109109.8
Earnings per job Ann Pct Ch	8.49	3.4	3.97	4.82	5.29	5.41

Chart 3-11: Rio Blanco Projected Per Capita Personal Income 2000-2025

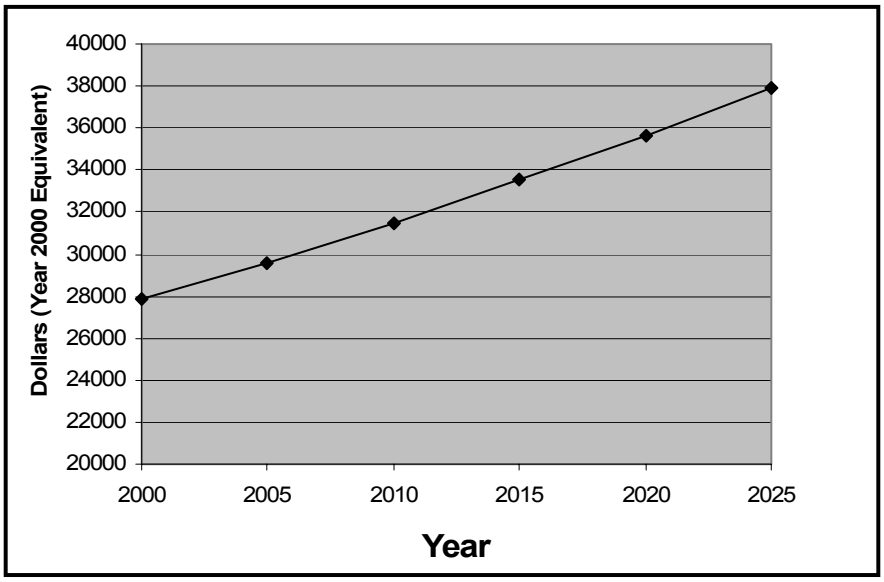
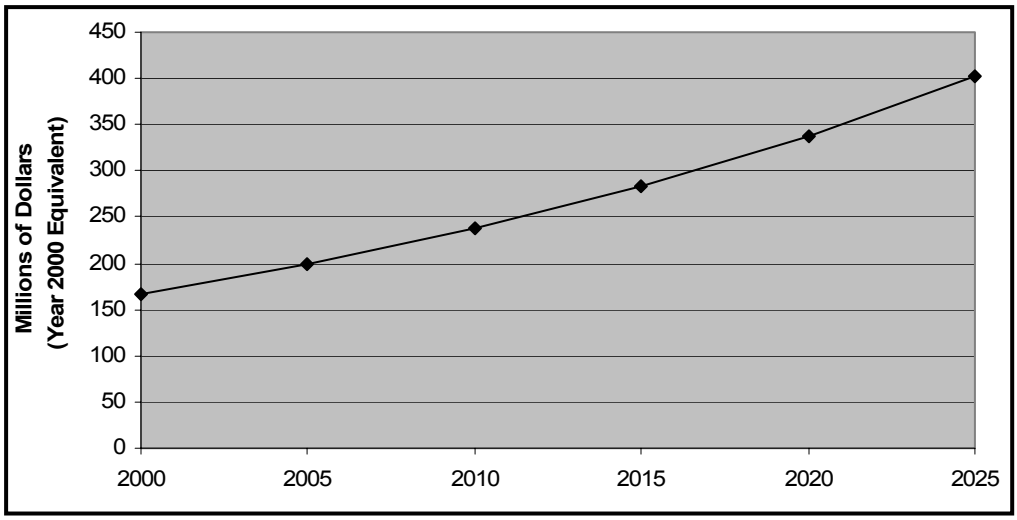


Chart 3- 12: Rio Blanco Total Personal Income 2000-2025



Unit Costs of the Wild Horse and Burro Program: Managing wild horses is not done without significant government expenditure. The tables below show average unit costs for both the Colorado program (Table 3-20). The data has been extracted from the BLM budget tracking system (Management Information System) calculating means for years 2000 through 2003.

The table shows activities associated with managing wild horses including: Adoption, Preparation and Holding, Gathering, Census Taking, and Regulatory Compliance. Units are in horses with the exception of Census which are shown in number of completed census activities accomplished. Direct Costs are those directly spent on wild horse activities. Unit Costs are simply direct costs divided by the number of units yielding a cost per horse or cost per census. Cost per Animal Gathered is a calculation that divides the sum of all direct costs or the sum of all total costs by the number of animals gathered. Cost per Animal

Adopted is a calculation that divides the sum of all direct costs or the sum of all total costs by the number of animals adopted.

Table 3-21: Mean Cost of the Colorado Horse and Burro Program Fiscal Years 2000-2003

Activity	Units	Direct Cost	Direct Unit Cost	Total Unit Cost
Adopted	308.75	$145,804	$472	$923
Prep & Hold	400.25	$667,824	$1,669	$2,214
Gathered	245	$136,070	$555	$890
Census	2.5	$18,368	$7,347	$11,169
Compliance	311	$52,808	$170	$511
Total		**$1,020,875**		
Cost Per Animal Gathered			$4,166.84	$6,432.82
Cost Per Animal Adopted			$3,306.48	$5,104.58

Data Sources: Population, employment, and income data are taken from the Economic Profile System produced by the Sonora Institute (2003). Tourism data are taken from a study conducted for the Colorado State Demographics Office (Center for Business and Economic Analysis 2003). Hunting data are taken from a BLM Colorado State Office Study utilizing Colorado State Department of Wildlife hunting figures and U.S. Fish and Wildlife Service 1996 Hunting Survey statistics (DOW 1996).

3.22 Elements of the Environment not Present or not Affected: Air Quality, Native American Concerns, Flood Plains and Wetlands, prime and unique farmlands, wild and scenic rivers, areas of critical environmental concern, hazardous wastes, and environmental justice; all of which are specifically protected by federal law or regulation; are either not present in the planning area, or would not be affected by the alternatives.

Section 4: Environmental Consequences and Mitigation

4.1 Wild Horses:

Impacts from Alternative A:

Direct impacts to the herd are clear cut: the herd would be abolished. Total removal would result in the loss of this herd of wild animals. Genetics and history unique to this herd would be lost. Members of the herd would either be placed with adopters; placed in sanctuaries; would die during gather, handling or holding; or would be humanely destroyed due to injuries incurred during gather, handling or holding.

Direct impacts to individual horses are those associated with any gather and holding activity and include stress, injury and mortality during gather, handling, transport and holding of the animals. The intensity of these impacts vary by individual animal, and are manifested as behavior changes ranging from nervous agitation to actions resulting in physical injury. Mortality of individuals from gather, sorting and shipping is infrequent but does occur (statistically in one half to one percent of horses gathered in BLM round-ups). Stress related impacts would include spontaneous abortions in mares, social displacement of all age classes, conflict between studs, and increased vulnerability to disease (most prevalent in foals and older animals). Traumatic injuries such as bruising, laceration and breaking bones is not common, but does occur. Stress, physical injuries and mortality would increase with the use of the alternative gather methods net-gunning and trapping/hazing.

Total removal would not be possible with just the traditional methods of gather. The horses are too elusive; the terrain too rough; and the overstory too dense to gather every horse with a helicopter, a trap, and a roper for back-up. Alternative methods would have to be employed at some point in time.

The initial total removal project would commence using helicopter drive-trapping. As much as 85% of the herd would be gathered by helicopter and ropers. The remaining 15% either would evade gather or would not even be sighted by the pilot and crew. An undetermined number of these animals would be breeding age mares.

After capturing the initial animals WRFO either would cease the initial gather project and wait four years for the next scheduled gather; or would immediately switch to alternative gather methods of helicopter net-gunning and/or helicopter drive trap/hazing. Tranquilizer-darting and hazing has been tried by the BLM and the Park Service on individual horses and burros over the years. Current consensus among wild horse and burro specialists, the National Program Office, and the Animal Plant and Health Inspection Service (APHIS) veterinarian community is that the use of tranquilizer darting is unsafe for wild equines.

Should WRFO cease their total gather attempt after trapping all possible with traditional methods, the herd would increase for four years until the next gather. The herd size at the second total removal gather likely would warrant the initial use of traditional gather and then would switch to net-gunning or helicopter drive-trap/hazing to try to gather all the remaining horses. Some horses would be spotted and gathered during this second total gather effort; some animals would die during gather; an undetermined number of males and females would either not be spotted or would be spotted but would evade gather. Horses remaining in the area would fall into two categories: known older studs deemed not cost-efficient to gather, and horses with uncanny abilities to avoid gather. These latter horses would each need to be found, and then observed closely enough that the sex could be accurately determined.

The situation of not being able to find, or not being able to gather each horse would continue for an undetermined number of years, and an undetermined number of gather attempts. With only a few horses present in the remaining herd, and with larger herds in other states obtaining higher priority status, the few West Douglas horses remaining in the herd would likely not receive national priority gather status. Instead, the remaining elusive animals would proliferate until their numbers increased to once again

warrant attention. Meanwhile, the BLM would keep accurate records of the current remaining population. Each casual or formal report of a horse spotted in the West Douglas Herd Area, or in adjoining allotments would have to be verified or discarded. The process would be costly and time consuming; yet vital if BLM was to live up to its objective of total removal.

Net-gunning has been used by the BLM to gather wild burros and by Native American communities to gather wild horses on tribal lands. The success of net-gunning is closely tied to the topography of the lands where the horses are being gathered. Gently rolling topography with few trees and without rock outcrops is effective for net-gunning. Country with dense overstory, steep hills and cliffs or arroyos is not conducive to net-gunning. Refer to Appendix B for a complete discussion of net-gunning.

Net-gunning is controversial in nature due to the technical nature of the gather technique. Net-gunning would require extensive external coordination with interested members of the public.

Helicopter drive-trapping/hazing was employed by the WRFO in 2001 during a gather of West Douglas horses that evaded traditional methods. This technique is effective when the horses need only be dragged/hazed short distances over fairly open, level terrain. This technique would become dangerous to the riders and the domestic and wild horses when attempted in heavy overstory or in steep terrain with arroyos and cliffs. The risk to the animals would increase proportionally with the distance they must be hazed to a location with vehicular road access.

Impacts from Alternative B:

The impacts to wild horses as a herd and as individuals are identical to those outlined for alternative A. The initiation of removal may be earlier than that under Alternative A; the date that the last horse was removed would not vastly differ. The process would last for a number of years into the future.

Impacts from Alternative C:

Critical to this alternative is maintenance of the currently preferred habitat through stipulations on Oil and Gas Development, using Controlled Surface Use Stipulations 9 and 10, and Timing Limitations 12 and 13, and Lease Notice 1. While these stipulations would not be automatically imposed and would be analyzed on a case-by-case basis, these stipulations/conditions of approval are paramount in assuring long term prime wild horse habitat is maintained. Until such time as all leases have been issued with the stipulations the only opportunity for maintaining current habitat conditions would be through offsets of wells and other site specific conditions of approval. Site specific conditions of approval would not control the density of development, and preferred habitat would not likely be protected. The opportunity for horses to use other areas would be limited because of existing and projected oil and gas development. Horses are expected to continue to move outside the herd area onto private and public lands because of a lack of fencing.

The success of managing a herd of this size will require closely monitoring herd health and composition. Age classifications collected during helicopter census and scheduled gathers would be closely compared against the 20% herd recruitment average. The herd recruitment average would be adjusted when gather and helicopter census data suggest herd recruitment is higher, or lower than 20%. Helicopter census would be budgeted as part of a gather project cost, and completed as close a possible to each gather to encourage removal of the proper number of animals.

Horses, not within the removal parameters, would be returned to the herd area. The effects of successive removals on populations would result in herd demographic shifts favoring younger horses (under 15 years). Returning animals considered at that time to be unadoptable would further alter the age and sex ratio of the herd, presumably towards older animals. These impacts are not typically thought of as adverse to a population unless the herd becomes composed of a preponderance of animals that are past their breeding age and that are susceptible to mortality through natural causes. On the other hand, older

animals are often more desirable in that they are more biologically fit, reproductively viable, and more capable of enduring stresses associated with traumatic natural and artificial events.

The impacts associated with capturing the wild horses are the same as identified in Alternative A. The difference between alternative A and C in the impacts from gather is that only traditional gather methods would be used to control herd numbers in Alternative C. The traditional gather methods are often less stressful on wild horses than are the alternative gather methods.

Additional impacts to the herd under this alternative would result from horses being gathered, and then returned to the herd. Direct impacts that will affect the entire herd includes displacement of bands during gather, fragmentation of bands after release, stress of re-establishing band structures and altering herd demographics (age and sex ratios). Horses have been found, over the last 20 years, very resilient to the social changes associated with gather (and release). Impacts to herd demographics are more serious and lasting and can result in skewed age structure and sex ratio in a herd.

The long term effects of selective gathers on herd demographics without conscientious monitoring of the herd health and age/sex structure could include a loss of disease resistance, lowered herd recruitment and increased herd mortality. (Cothran 2002)

The short-term effect of lowering the population to this extent would result from the significant impact on herd dynamics and population variables because of the atypical population structure of animals remaining in the herd at the completion of the initial gather. Potential impacts on horse herds from exercising poor selection criteria, not based on herd dynamics, includes modification of age or sex ratios to favor a particular class of animal. Effects resulting from successive removals causing shifts in sex ratios away from normal ranges are also possible. Leaving more studs than mares results in decreased band size, increased competition for mares, decreased female recruitment age, and possible increases in the number of bachelor bands. The higher ratio of studs is desirable from a perspective that smaller bands equates to more studs contributing to the gene pool, and the consequent increased number of breeding animals that contribute to the herd. The existing ratio of male and female horses could be altered during any gather project. Bachelor bands could be removed during gathers to avoid overly skewing the herd towards male animals.

Impacts from Alternative E:

With the southern boundary fenced, horses are expected to adapt or move north, possibly improving distribution of horses into the northern portions of the herd area.

The appropriate management level would range between 100 and 207 horses. Population size would be controlled by natural mortality, predation, and periodic gathers.

The impacts associated with manipulating the herd sex ratio and age structure are the same as those discussed under alternative C.

The impacts resulting from gather, holding and transport would be the same as those described under alternative C. Alternative gather would not be necessary for alternative E.

Impacts associated with returning select animals back into their herd are the same as discussed in alternative C.

Critical to this alternative is maintenance of the currently preferred habitat through stipulations on Oil and Gas leases. While these stipulations would not be automatically imposed and would be analyzed on a case-by-case basis, these stipulations along with conditions of approval may turn out to be paramount in assuring long term prime wild horse habitat is maintained. Until such time as all leases have been issued with the CSUs and TLs the only opportunity for maintaining current habitat conditions would be through offsets of wells and other site specific stipulations. Site specific stipulations would not control the density of development, and preferred habitat would not be protected.

Establishment of a wild horse habitat corridor would partially mitigate the risk associated with managing fewer than 150 animals. The corridor would encourage herd interaction, and consequent genetic and allelic interchange.

Oil Springs Mountain WSA would be fenced out of the herd area in this alternative. This would result in the loss of 1,537 acres of key, and 3,753 acres of key habitat to the herd. This loss of habitat would be especially crucial prior to establishment of the migration corridor and redistribution of the herd. Fencing the horses from a portion of their home range would result in an unforeseeable number of horses crossing onto the wrong side of the new fence, regardless of the design and upkeep of the fence. The crossing could be through gates inadvertently left open or over fence wire that is damaged by elk and deer crossing. The horses relocating outside their management area would require increased time and cost during gather activities and increased time and effort responding to reports of the horses being outside their management area. Fences would not be constructed on the western and northern boundaries, where horses could move outside the herd area, and potentially onto private lands.

Impacts from Alternative F:

With this alternative a herd in the Texas and Oil Spring Mountains area would be established. Critical to this alternative is maintenance of the currently preferred habitat through stipulations on Oil and Gas leases. While these stipulations would not be automatically imposed and would be analyzed on a case-by-case basis, these stipulations, with conditions of approval, may turn out to be paramount in assuring long term prime wild horse habitat is maintained. Until such time as all leases have been issued with the CSUs and TLs the only opportunity for maintaining current habitat conditions would be through offsets of wells and other site specific stipulations. Site specific stipulations would not control the density of development, and preferred habitat would not be protected.

The appropriate management level would range between 100 and 207 horses. Population size would be controlled by natural mortality, predation, and periodic gathers.

The impacts associated with manipulating the herd sex ratio and age structure are the same as those discussed under alternative C.

The impacts resulting from gather, holding and transport would be the same as those described under alternative C. Alternative gather methods would not be necessary for this alternative.

Impacts associated with returning select animals back into their herd are the same as discussed in alternative C.

Genetic variability and allelic diversity would be improved using the same actions described in Alternative E.

The impacts associated with gather, holding and transport would be the same as described for alternative A with the exception that alternative gather techniques would not need to be employed. The benefits of establishing a habitat corridor would not be realized with this alternative. Genetic exchange between the horses would be limited to natural selection and scheduled introduction.

Complications arising from fencing horses out of a portion of their home range are the same as discussed in Alternative E.

Impacts from Alternative G:

With this alternative the entire West Douglas Herd Area would be managed for between 300 and 622 wild horses.

This alternative would also require oil and gas lease stipulations. While these stipulations would not be automatically imposed and would be analyzed on a case-by-case basis, these stipulations, with conditions of approval, may turn out to be paramount in assuring long term prime wild horse habitat is maintained. Until such time as all leases have been issued with the stipulations the only opportunity for maintaining current habitat conditions would be through offsets of wells and other site specific conditions of approval. Site specific conditions of approval would not control the density of development and preferred habitat would not be protected. Distribution/concentration of horses would be limited to the areas of least development. Without implementation of these stipulations important horse habitat would be lost. Horses would be prevented from moving outside the Herd Area by perimeter fences. Horses are expected to move throughout the herd area to avoid development, or to adapt to the development

The impacts resulting from gather, holding and transport would be the same as those described under alternative C. Alternative gather methods would not be necessary for this alternative.

Impacts associated with returning select animals back into their herd are the same as discussed in alternative C.

Genetic variability and allelic diversity would be improved using the same actions described in Alternative E except that this introduction is not foreseen to be a lasting requirement for sound genetic variability.

The impacts associated with gather, holding and transport would be the same as described for alternative A with the exception that alternative gather techniques would not need to be employed.

Complications arising from fencing horses out of a portion of their home range are the same as discussed in Alternative E.

The northern portion of the herd area has few reliable year-round waters. During drought years when Main-stem Douglas Creek and the ponds dry up, water may become critical for the horses. This will be particularly acute if a drought occurs during the period the horse population is reaching its upper limit.

With this alternative, approximately 333 horses would be removed every four years, without fertility control.

4.2 Rangeland Management:

Impacts from Alternative A: The current forage allocation to livestock of 9,080 AUMs within the herd area would be maintained. There would be no changes in the permitted use for the grazing permittees. Grazing management plans were created in 1984 and modified in 1999. These plans were based on the premise that the BLM would follow the land use plans and remove all horses. As a result of not removing the horses both grazing management plans are non-functional. Failures in the grazing plan relates to limited forage, resulting from no forage allocation for horses; season long grazing by wild horses which affects vegetation condition and production; and wild horse and cattle direct competition preventing livestock use of important ranges and water sources.

Under this alternative, the permittee retains responsibility for those range improvements including fences and ponds. Wild horses make use of range improvements and add to the cost of maintenance. In the

Texas Mountain area, use and damage by wild horses has increased the cost of maintenance of range improvements by approximately 20%.

Impacts from Alternative B: Under this alternative the authorized livestock permitted use within the herd area would be reduced from 9,080 AUMs to 6,947 AUMs. Horses would be removed and there would be no forage allocation for horses. The Bull Draw allotment's permitted use would increase from 187 AUMs to 415 AUMs. Bull Draw is used for four and a half months, November 15 to March 30 and the changes in permitted use would increase cattle numbers from 42 to 92. The Twin Buttes allotment would decrease from approximately 8,665 AUMs to 6,532 AUMs. The herd area portion of the Twin Buttes allotment is used eight and a half months, November 1, to June 12, and the changes in permitted use would be an approximate decrease from 1040 head of cattle to 770. Modification of Twin Buttes allotment's carrying capacity is expected to improve each pasture's stocking rate and period of use.

The current allotment management plan for Twin Buttes Allotment would remain valid. Overall, the grazing system is designed to allow critical growing season rest on areas of concern and decrease overall use by improving livestock distribution. The Texas Mountain area is critical to this management program. The impacts of this alternative are described in detail in the Twin Buttes Allotment Environmental Assessment (BLM White River Field Office 1999) and Colorado Standards and Guidelines for Rangeland Health were incorporated.

Under this alternative, the permittee retains responsibility for those range improvements including fences and ponds. Wild horses would be removed, decreasing the cost of maintenance of range improvements by approximately 20%.

Impacts from Alternative C: The current Allotment Management Plan would need to be revised to reflect the retention of horses. Livestock permitted use within the herd area would be reduced from 9,080 AUMs to 6,299 AUMs. Horses would be allocated 648 AUMs to sustain a herd of between 29 and 60 individuals. The Bull Draw allotment's permitted use would increase from 187 AUMs to 415 AUMs. The Twin Buttes portion of the herd area would be reduced to 5,884 AUMs. Horse use would be within the East and West Texas pastures. This would reduce the combined livestock carrying capacity of these pastures from 2,487 AUMs to 1,839 AUMs.

Expected impacts include localized overgrazing, maintenance of sub-optimal forage resources and direct conflict between horses and cattle, resulting in displacement of cattle. Use of the Texas Mountain area is critical to the livestock operation. Current horse/livestock conflicts are expected to continue, but are expected to be decreased based on the reduced wild horse population range to 29-60 head. In comparison, the historical population ranged 60-151horses.

Under this alternative, the permittee would retain responsibility for range improvements including fences and ponds. Wild horses would make use of range improvements and add to the cost of maintenance. In the Texas Mountain area, the wild horse-related use would increase the cost of maintenance of range improvements approximately 20%.

Impacts from Alternative E: The current allotment management plan would need to be revised to reflect the retention of horses. Livestock permitted use within the herd area would be reduced from 9,080 AUMs to 4,715 AUMs. Horses would be allocated 2,232 AUMs to sustain a viable herd of between 100 and 207 individuals. The Bull Draw allotment's permitted use would increase from 187 AUMs to 205 AUMs (Until such time as horses are properly distributed, the Texas Creek pasture would not be usable to livestock except for moving between summer and winter ranges. Livestock use around Texas Mountain during the spring period is necessary for the current allotment management plan to function. The inability to use Texas Mountain would require livestock to remain on the winter ranges until the middle of June, preventing growing season rest. The result would be degradation in rangeland resources, likely requiring additional reductions in permitted use.

Even after the migration corridor is established, and horses become more widely distributed, the current allotment management plan would remain invalid because of horse cattle conflicts in the Texas Mountain

area. This would require modification of the allotment management plan with additional decreases in permitted use.

This alternative would require construction of 9.4 miles of fence and yearly maintenance to exclude the Oil Springs Mountain WSA. This fence would tie in with the existing Texas Creek fence. The Texas Creek fence would need upgrading, as horses regularly cross this fence and escape the Herd Area. Costs of this fence and maintenance would be the responsibility of the BLM. The estimated cost of these fences is $94,000 ($10,000/mile) construction, and $1,800.00/year maintenance. Fences would not be constructed on the western and northern boundaries and horses are expected to move outside the herd area and on to private lands. BLM costs for maintaining springs and ponds are estimated at $2,000.00 per year.

Impacts from Alternative F: The current Allotment Management Plan would require revision to reflect the retention of horses. Livestock permitted use within the herd area would be reduced to 4,712 AUMs. Horses would be allocated 2,232 AUMs to sustain a viable herd of between 100 and 207 individuals within the East and West Texas pastures. The Bull Draw allotment's permitted use would increase from 187 AUMs to 415 AUMs. The Twin Buttes portion of the herd area would be reduced to 4,300 AUMs. Within the East and West Texas creek pastures livestock would be permitted to use 255 of the 2487 AUMs.

Approximately 506 cattle could use the Twin Butte portion of the herd area during an eight and a half month period. Within the East and West Texas creek pastures, livestock use would be limited to 15 days per year and be limited to trailing between summer and winter ranges.

Livestock use around Texas Mountain during the spring period is necessary for the current allotment management plan to function. The inability to use Texas Mountain would require livestock to remain on the winter ranges until the middle of June, preventing growing season rest. The result would be degradation in rangeland resources, likely requiring reductions in permitted use.

This alternative would require construction of 32 miles of fence and yearly maintenance of 34 miles of fence. 18.26 miles of fence would be constructed to enclose the southern boundary. This fence would tie in with the existing Texas Creek fence. The Texas creek fence would need upgrading, as horses regularly cross this fence and escape the Herd Area. 13.6 miles of fence would be constructed to enclose the northern boundary. Cost of fencing and maintenance would be the responsibility of the BLM. The estimated cost of fence under this alternative is $320,000.00 ($10,000/mile) construction, and $6,400.00/year maintenance. The BLM would also pick up maintenance costs of all projects needed to manage the horses, including 4 springs, and 18 stock ponds. The cost of maintaining these ponds is estimated to be $500.00/year, with a ten year cycle for maintenance. Spring maintenance is estimated at $100.00/year.

Impacts from Alternative G: All carrying capacity within the herd area would be provided for wild horses. The livestock Grazing Permits associated with the Twin Buttes and Bull Draw allotments would be modified to show the removal of permitted use associated with the Herd area. The Bull Draw allotment would be completely removed leaving the grazing permittee with the East Douglas Creek Allotment for their livestock operation. This would be a loss of 19% of the total permitted use and 60% of the winter range. The Twin Buttes allotment would loose all winter range and most of the spring/fall ranges. This would be a loss of 79% of the permitted use.

This alternative would require construction of 32.5 miles of fence and yearly maintenance of 61 miles of fence. 18.26 miles of fence would be constructed to enclose the southern boundary, including 14 miles within the Oil Springs Mountain WSA. This fence would tie in with the existing Texas Creek fence. The Texas creek fence would require upgrading, as horses regularly cross this fence and escape the herd area. 14.25 miles of fence would be constructed to enclose the northern boundary. BLM would be responsible for the cost of fencing and maintenance. The estimated cost of fencing would be $325,000.00 ($10,000/mile) construction, and $12,200.00/year maintenance. The BLM would also pick up maintenance costs of all projects needed to manage the horses, including: 4 springs, 3 wells, and 69 stock ponds. The cost of maintaining the ponds is estimated to be $1,500.00/year, with a ten year cycle for maintenance.

Spring maintenance is estimated to be $100.00/year. All of the wells would require complete rebuilding at an estimated cost of $10,000.00 per well and yearly maintenance of $400.00/year.

4.3 Vegetation:

Impacts from Alternative A: Vegetation decisions of the White River ROD/RMP would continue to apply under this alternative. The carrying capacity for the Herd Area would be 9,080 AUMs. Until ROD/RMP decision for removal of all horses is implemented, competition between livestock and horses would continue. On those areas where wild horses concentrate, and year-long grazing occurs, vegetation conditions would continue to decline, as would production. Currently, there are approximately 1,700 acres of rangeland within the herd area that do not meet the Standard for Public Land Health for vegetation, which is directly attributable to wild horse utilization. Because of the limited forage resources available, wild horses will increase their range to procure forage. An additional 1,200 acres of range are at risk until wild horses are completely removed. Following removal of all horses the livestock grazing management program outlined in the Twin Buttes Allotment Management Plan would be implemented. Vegetation monitoring studies would be used to monitor rangelands to determine the success of the grazing program, to monitor plant health guidelines and to document carrying capacity.

Under this alternative management of noxious weeds by the BLM, County and Grazing Permittees would be maintained. Cheatgrass infestations would continue on existing areas and would expand as horses extend their range until their removal.

There would be no additional stipulations for oil and gas development. Based on the development that currently exists in the central portion of the herd area, oil and gas development is expected to occupy 50 acres/section, given a road density of 6 miles/section, 10 active wells/section and appropriate gas transportation facilities. A determination of loss of forage is difficult because of the difficulty in projecting the location of development. In a best case scenario, development would be sited on non-productive sites and the loss of forage would be approximately two AUMs/section. There would be a projected loss of 96 AUMs in the Texas Creek Pastures. A worst case scenario would be development occurring in the bottoms, upper elevations of Texas Mountain and on the pinyon/juniper chainings. In this case an estimated 384 AUMs would be tied up in oil and gas development in the Texas Creek Pastures.

Impacts from Alternative B: Vegetation decisions of the White River ROD/RMP would continue to apply under this alternative. Horses would be removed and the carrying capacity for the Herd Area would be reduced to 6,914 AUMs. Removal of the continuous, year-long grazing by horses would aid in the reestablishment of healthy, productive plant communities on 1,700 acres. Cattle management through the Twin Buttes Allotment Management Plan would allow forage species the opportunity to meet physiological requirements for growth, reproduction and carbohydrate storage. On several of the degraded plant communities, progression to the climax community is expected, but would take 15 years or longer. Vegetation monitoring studies would be used to monitor rangelands to determine the success of the grazing program and whether Public Land Health Standards are being met. This information can then be used to determine if further adjustments to the carrying capacity are warranted.

Under this alternative management of noxious weeds by the BLM, County and Grazing Permittees would be maintained. Cheatgrass infested ranges are expected to improve significantly, due to removal of wild horses.

Impacts from the oil and gas development scenario described in alternative A would also apply under this alternative.

Impacts from Alternative C: Vegetation decisions of the White River ROD/RMP would continue to apply under this alternative. Inside the Herd Area the number of horses would be maintained at a population between 29 and 60 head. Competition between livestock and horses for forage and water sources would continue. Season long grazing would continue on the preferred wild horse ranges, and current vegetation conditions rated as poor (0-25% desired species of the climax community) would continue with no

improvement expected. Some expansion of degraded rangelands is expected which would further decrease forage production. Vegetation monitoring would be used to determine vegetation health standards and carrying capacity. Any changes in carrying capacity would be borne by the livestock operation.

Under this alternative, management of noxious weeds by the BLM, County and Grazing Permittees would be maintained. Cheatgrass would be maintained on existing areas and potentially increase as horses extend their range.

Stipulations to Oil and Gas development would have the potential to prevent development on the majority of the Texas Mountain area preventing a decrease in forage estimated at between 96 and 384 AUMs, should the stipulations be placed into effect on the majority of new oil and gas projects..

Impacts from Alternative E: Vegetation decisions of the White River ROD/RMP would continue to apply under this alternative. Fencing out of the Oil Springs Mountain Wilderness Study area would remove 7,611 acres of important wild horse summer range. This represents a forage loss of 359 AUMs. Horse use would be displaced to the upper elevations of Texas Mountain producing approximately 252 AUMs. Until such time as lease stipulations or conditions of approval maintain important habitat in the Texas Mountain area, and the corridor to the north is established, the concentration (90%) of horse use would be within the Texas Mountain area. Horse use would average approximately 2232 AUMs (76%) of the estimated 2926 AUMs available. Horse use would be season long with widespread degradation in rangeland conditions expected. Key forage areas consisting of Texas Creek, Texas Mountain, and the Pinyon/Juniper chainings would be especially hard hit. Under this alternative, management of noxious weeds by the BLM, and the County would be maintained. In the Texas Mountain area the Grazing Permittees, would not be expected to maintain their current level of enthusiasm for weed control. Thus, the opportunity for introduction of noxious weed species is expected to increase along with the cost of treatment because of decreased surveillance and increased infested acreages. Cheatgrass infested ranges would increase until horse distribution changes after development of the migration corridor.

After the corridor linking suitable range to the north is established (through the stipulations and conditions of approval for oil and gas development), and the horses take advantage of the corridor, wild horse distribution throughout the herd area would improve significantly. Gather operations which target horses on overused ranges would further improve distribution. Once horses are spread out, the vegetation impacts described for the Texas Mountain area would improve similarly to those described under Alternative C. On the remainder of the herd area localized season long grazing by horses is expected to decrease palatable species and increase less palatable plants. The Grazing Permittees are expected to again participate in weed control efforts. Vegetation monitoring would determine areas on which vegetation is not meeting vegetation health standards and carrying capacity. Any changes in carrying capacity would be borne by the livestock operation.

Stipulations to Oil and Gas development would prevent development on the majority of the Texas Mountain area preventing a decrease in forage estimated at between 96 and 384 AUMs. Implementing CSU3 for development of a corridor would increase forage for horses and livestock by approximately 63 AUMs. Implementing spacing limitations on the northern part of the horse range would maintain vegetation disturbance at current levels.

Impacts from Alternative F: Vegetation decisions of the White River ROD/RMP would continue to apply under this alternative. Under this alternative, a viable wild horse herd with a population range of 100 to 207 horses would be limited to the area around Texas Mountain. Horses would use approximately 2,232 (71%) of the available 3,119 AUMs in this area. Horse use would be season long with widespread degradation in rangeland conditions expected. Key forage areas consisting of Texas Creek, Texas Mountain, and the Pinyon/Juniper chainings would be especially hard hit. Vegetation conditions are expected to decline on these areas with a resulting decrease in forage production. Outside of the area where horses would be managed, livestock would continue to be managed. The inability to use the Texas Mountain area would require livestock to remain on the winter ranges until the middle of June, preventing growing season rest. The result would be degradation in rangeland resources which would likely lead to

additional reductions in permitted use. Vegetation monitoring would be used to determine vegetation health standards and carrying capacity. Any changes in carrying capacity within the Texas Mountain area would be borne by the wild horses. Outside of the Texas Mountain area changes in carrying capacity would be borne by the livestock operation.

Under this alternative, management of noxious weeds by the BLM, and the County would be maintained. The Grazing Permittees are not expected to maintain their current level of enthusiasm for weed control within the Texas Mountain area, due to the very limited livestock use. The opportunity for introduction of noxious weed species within the Texas Mountain area is expected to increase along with the cost of treatment because of decreased surveillance and increased infested acreages. Cheatgrass infested ranges would also increase.

Stipulations to Oil and Gas development would prevent development on the majority of the Texas Mountain area preventing a decrease in forage estimated at between 96 and 384 AUMs.

Impacts from Alternative G: Vegetation decisions of the White River ROD/RMP would continue to apply under this alternative. Under this alternative all forage resources would be allocated to wild horses. The horse population would range between 310 and 643 horses using a mean/average of 6,914 AUMs. Initially wild horses would concentrate on their preferred ranges, degrading these rangelands. As forage resources declined, horses would search out additional foraging areas, improving distribution. Horse distribution would also be improved by removal of horses from areas determined to be not meeting the standards for public land health. Widespread, season-long grazing would occur and the preferred plant species would be removed. Less palatable species would increase dominance. Cheatgrass would be expected to increase as well as other noxious weed species. Management of noxious weeds by the BLM, and the County would be maintained. The Grazing Permittees would not participate in weed control. The opportunity for introduction of noxious weed species is expected to increase along with the cost of treatment because of decreased surveillance and increased infested acreages. Cheatgrass infested ranges would also increase. Rangeland studies would monitor rangeland conditions identifying problem areas and further refining the wild horse carrying capacity.

Stipulations to Oil and Gas development would prevent development on the majority of the Texas Mountain area preventing a decrease in forage estimated at between 96 and 384 AUMs. Implementing spacing limitations on the northern part of the horse range would maintain vegetation disturbance at current levels.

Under this alternative 333 horses would be removed on a four year cycle. If the gather schedule is missed, just one year, 462 horses would need to be removed. The forage used this fifth year would be 11,580 AUMs, which exceeds the established carrying capacity by 70%. Widespread overgrazing and damage to plant communities would occur. Reducing horse numbers back to the minimum horse level of 310 horses would not allow recovery of the forage resource, prior to the next gather cycle. Any postponement of gathers invalidates this alternative in regards to maintaining long term consistent management to maintain public land health standards.

Finding on the Public Land Health Standard for plant and animal communities (partial, see also Wildlife, Aquatic and Wildlife, Terrestrial): The table below shows the anticipated changes in acres meeting and not meeting the Standard for Public Land Health for plant communities by alternative and pasture. This table uses Alternative A, (Current Situation) as a base for comparison.

Table 4.1: Finding on the Public Land Health Standard for Plant Communities by Acreage

Pasture	Acres Achieving/Not Achieving* the Public Land Health Standard											
	Alternative A		Alternative B		Alternative C		Alternative E		Alternative F		Alternative G	
	Achieving	Not Achieving	Achieving	Not Achieving	Achieving	Not Achieving	Achieving	Not Achieving	Achieving	Not Achieving	Achieving	Not Achieving
Cottonwood	13245	1099	13775	569	13345	999	13295	1049	13089	1255	12920	1424
Upper Horse	8943	1059	9719	283	9547	455	9547	455	8251	1751	8855	1147
Water Cyn	21838	1284	22615	507	22494	628	20817	2305	20446	2676	15936	7186
E. Texas	20148	593	20501	240	20501	240	20501	240	17561	3180	17561	3180
N Texas	17058	831	17801	88	17801	88	16935	954	15052	2837	10903	6986
W Texas	18241	1372	19263	350	18993	620	18993	620	17153	2460	17153	2460
W Creek	7061	166	7061	166	7061	166	6281	946	6281	946	6281	946
Water Hole	41	0	41	0	41	0	41	0	41	0	41	0
Park	882	0	882	0	882	0	882	0	882	0	882	0
Bull Draw Allotment	9526	0	9526	0	9526	0	9326	200	9526	0	8770	756
Totals	**116983**	**6404**	**121184**	**2203**	**120191**	**3196**	**116618**	**6769**	**108282**	**15105**	**99302**	**24085**

**Achieving=Plant communities that are achieving the standards for public land health for vegetation resources. Not Achieving= Plant communities that are not achieving the standards for public land health for vegetation resources.*

Another requirement of the Standard for Public Land Health is "Noxious weeds and undesirable species are minimal in the overall plant community." The table below shows the expected changes in noxious weeds and cheatgrass for each pasture by alternative. This information is based in the alternative descriptions for vegetation.

Table 4.2: Finding on the Public Land Health Standard for Plant Communities (Noxious Weeds and Cheatgrass)

Pasture	Expected Trend in Noxious Weeds and Cheatgrass (Bromus tectorum) Acreages ⇑ Improving Conditions/Decreased Acreages ⇔ Stable or No Change in Acreages ⇓ Declining Conditions/Increased Acreages					
	Alternative A	Alternative B	Alternative C	Alternative E	Alternative F	Alternative G
Cottonwood	⇔	⇑	⇔	⇓	⇓	⇓
Upper Horse	⇔	⇑	⇔	⇓	⇓	⇓
Water Cyn	⇔	⇑	⇔	⇓	⇓	⇓
E. Texas	⇓	⇑	⇓	⇓	⇓	⇓
N. Texas	⇔	⇑	⇔	⇓	⇓	⇓
W. Texas	⇓	⇑	⇓	⇓	⇓	⇓
W. Creek	⇔	⇑	⇔	⇔	⇓	⇓
Water Hole	⇔	⇔	⇔	⇔	⇔	⇔
Park	⇔	⇑	⇔	⇔	⇔	⇔
Bull Draw Allot	⇔	⇔	⇔	⇓	⇔	⇓

4.4 Water Quality:

Impacts from Alternative A: Cottonwood Creek, Evacuation Creek and Douglas Creek watersheds were identified in the White River ROD/RMP as being fragile watersheds. Current management has 9,080 AUMs allocated to livestock only; and 64 miles of drainage bottoms are available for grazing (Douglas Creek, Hells Hole, Cottonwood Creek and Evacuation Creek). Under the current situation (with horses) forage deficits could develop due to competition between horses, livestock and wildlife for available vegetation. Livestock are managed in a manner to allow for vegetation rest during the growing season.

However, wild horses may graze at any location, year-round. Overuse would deplete the vegetative cover needed to protect watersheds from runoff and erosion and could cause long-term watershed problems. Surface water quality is maintained and improved when it passes through healthy soil and vegetation communities. These areas act like a combination sponge and filter that slows overland flow of water and helps retain soil on the land where it is an asset, as opposed to in the water, where high levels of soil can become a problem. Sensitive (e.g. fragile soils) watersheds that have a very high erosion potential are frequently high in salts and can contribute to increased salinity loads into the White River. A proper grazing management practice, for domestic livestock, wildlife, or wild horses, within sensitive watersheds is consequential to reducing erosion and sedimentation from both streambed and upland sources. Improving the rangeland conditions and vegetation cover by removing wild horses, and thus reducing some of the current grazing and depletion of vegetation, would therefore have a positive affect on watershed stability and water quality. Oil and gas development would continue to impact water quality due to exposure of the soil to climatic elements resulting in erosion of sediment and salt, and piping or rill erosion.

Impacts from Alternative B: Under this alternative, 64 miles of drainage bottoms within the watersheds, Douglas Creek, Hells Hole, Cottonwood Creek and Evacuation Creek would be available for grazing with 31% reductions (from 9,080 AUMs to 6,947 AUMs) in overall allocated AUMs from the current situation. No AUMs would be allocated to wild horses. Livestock are managed in a manner to allow for vegetation rest during the growing season, while horses graze year-round. Removal of wild horses would allow the vegetation to rest during the growing season. In addition, the fewer AUMs allocated to livestock, the more vegetation there would be to protect the individual watersheds from surface runoff. The removal of horses along with a reduction in the overall AUMs would reduce the risk of degrading fragile watersheds. Studies have not been completed to show the individual contribution of oil and gas development, livestock grazing, and wild horse impacts on erosion in the watershed, so no comparative analysis can be made or thresholds determined. Removal of horses is expected to improve watershed stability, decreasing sediment and salts, which would improve water quality for reasons stated under Alternative A above. Removal of horses and reduction in allocated AUMs under Alternative B would result in greater improvements to water quality than are expected from Alternative A.

Impacts from Alternative C: Although the total number of AUMs allocated for both livestock and wild horses are the same for alternatives B through H, how these AUMs are utilized would impact the watersheds differently. Management of wild horses does not include moving horses into different pastures and allowing vegetation to rest during the growing season, as is common practice for livestock management. Under Alternative C, 648 AUMs of the 6,947 AUMs would be allocated for a maximum of 60 wild horses on 54,213 acres of Federal lands. It is expected that, with the smaller herd size, horses would concentrate in their preferred habitat, trampling the uplands of Evacuation Creek. Evacuation Creek was identified as a fragile watershed in the White River ROD/RMP. Under this alternative, concentrated horse use of vegetation would contribute to watershed degradation and increased overland runoff and sediment erosion thereby decreasing water quality in nearby drainages. Oil and gas lease stipulations, and associated conditions of approval for applications for development, would reduce potential for oil and gas impacts described under Alternative A.

Impacts from Alternative E: Under this alternative, 2,232 of the 6,947 AUMs would be allocated for a maximum of 207 wild horses on 112,197 acres of Federal lands and 8,520 acres of drainage bottoms would be available for grazing. Impacts from this alternative would be similar to Alternative C, but with more horses, the effects of not being able to move them out of over-grazed areas would increase. Fencing out Oil Spring Mountain would protect 2.1 miles of upper Missouri Creek and 2 miles of main stem Texas Creek, which would be advantageous to Evacuation Creek. However 19,100 acres of the Evacuation Creek drainage would still be available for use. Also, under this alternative, BLM would develop and maintain additional water sources for horses thereby taking some of the pressures off of the remaining drainage bottoms. The actual impacts to water quality caused by this vegetation deficit would be similar to what is listed in Alternative A. Oil and gas lease stipulations, and associated conditions of approval for applications for development, would reduce potential for oil and gas impacts described under Alternative A.

Impacts from Alternative F: Under this alternative, 2,232 of the 6,947 AUMs would be allocated for a maximum of 207 wild horses on 54,213 acres of BLM lands and 3,278 acres of drainage bottoms would be available for grazing. This alternative is similar to Alternative E; the same number of horses will be managed, but a fence would be built to concentrate the horses in the southern half of the herd area and Oil Spring Mountain WSA would be available for horses. Fourteen of the sixteen springs are located in this portion of herd area. With this number of horses in a smaller area, it is expected they will concentrate in the uplands of Evacuation Creek. Evacuation Creek was identified as a fragile watershed in the White River ROD/RMP. The actual impacts to water quality caused by this vegetation deficit would be similar to what is listed in Alternatives E and A. Oil and gas lease stipulations, and associated conditions of approval for applications for development, would reduce potential for oil and gas impacts described under Alternative A.

Impacts from Alternative G: All AUMs would be allocated for wild horses and 32.5 miles of fence would need to built and maintained. Maximum number of wild horses would be 643 horses with 8,267 acres of bottoms available for grazing. Increasing horse numbers would degrade fragile watersheds, increase sediment and salt loads which in turn would degrade water quality. Salts and other constituents adhere to sediment particles which quickly go into solution when introduced to water. It is estimated that, with an increased number of horses, their distribution would expand. Evacuation and Douglas Creeks would be mostly impacted. The actual impacts to water quality caused by this vegetation deficit would be similar to what is listed in alternative A, with a greater degree of resource degradation. Oil and gas lease stipulations, and associated conditions of approval for applications for development, would reduce potential for oil and gas impacts described under Alternative A.

Mitigation Measures: For alternatives C, E, F, and G, BLM should develop water sources to decrease concentration of horses on existing water sources and in drainage bottoms.

Finding on the Public Land Health Standard for water quality: This standard states that water quality of all water bodies, including ground water where applicable, located on or influenced by BLM lands will achieve or exceed the Water Quality Standards established by the State of Colorado. Water Quality standards for surface and ground-waters include the designated beneficial uses, numeric criteria, narrative criteria and antidegradation requirements set forth under State law (5 CCR 1002-8) as required by Section 303(c) of the Clean Water Act. Indicators for achieving these standards are: appropriate populations of macroinvertabrates, vertebrates, and algae are present and surface and ground waters only contain substances (e.g. sediment, scum, floating debris, odor, heavy metal precipitates on channel substrate) attributable to humans within the amounts, concentrations or combinations as directed by the water quality standards established by the State of Colorado (5 CCR 1002-8).

Based on the AUM allocations and the number of animals being managed by alternatives, overland runoff would contribute larger amounts of the substances identified above when a larger population of wild horses is being managed. Sediment would be the substance that would most likely increase with a decrease in vegetation cover. Currently the state does not have a numerical standard for sediment loads. Alternatives B through G allocate the same number of AUMs with slight differences to the number of animals being managed and the amount of BLM lands used for that management. Until a threshold is developed for sediment, the overall landscape of the area would meet the water quality standards set by the State, and none of the alternatives would affect the finding on the Land Health Standards.

4.5 Hydrology and Water Rights:

Impacts from All Alternatives: None of the alternatives would impact the status of water rights in the herd area. See Section 4, Paragraph 4.2 (Rangeland Management) for a discussion of water sources and spring maintenance.

4.6 Riparian Zones:

Impacts from Alternative A: Under the current grazing management program; livestock are removed from along Main–stem Douglas Creek prior to the end of the growing season. A group of wild horses has been using Main-stem Douglas Creek in the vicinity of Vandamore Draw. The riparian study plot in this area has not shown any adverse impacts to riparian habitats resulting from livestock or horse use. Riparian habitat is currently rated as functioning and improving. There are strong stocks of coyote willow providing adequate stream bank stability. Beaver have been active along Main-stem for approximately the last ten years.

On West Douglas Creek, fencing of State Highway 139 has excluded all but two miles of West Douglas Creek from the Herd Area. Under the current livestock management program livestock use West Douglas Creek during their migration between the winter and summer ranges. In the past there were efforts to decrease use along the riparian areas by increasing forage and water sources on the uplands. These efforts have been unsuccessful and livestock concentrations, along West Douglas Creek, have been a problem. Countering the livestock concentration problems are the beaver which have been increasing in the area. Beaver ponds have impounded water decreasing livestock's accessibility to the stream channel. Problems with riparian health are very localized but generally severe.

On West Creek, riparian conditions and impacts are the same as West Douglas Creek.

<u>Following removal of the horses</u>: Livestock grazing use would decrease both in duration and intensity, along West Douglas Creek. This would be the result of increased ability to use upland water and forage resources without competition with horses. There would be an increase in herbaceous standing crop along stream banks, which is critical to capture of sediment and requisite to bank building and stability.

Impacts from Alternative B: Same as A, following removal of the horses.

Impacts from Alternative C: Impacts to this alternative would be similar to the *current conditions* discussion in Alternative A.

Impacts from Alternative E: Until the horses are properly distributed, there is expected to be increased use of West Creek and West Douglas by both cattle and wild horses. Competition for upland forage and water in the Texas Mountain area would increase conflict between horses as well as between horses and cattle. Cattle would be limited to using the bottoms of West Douglas Creek. Competition between groups of horses is expected to increase use of West and West Douglas creeks. When horses become properly distributed the impacts to West and West Douglas would be similar to the impacts described in the current situation of Alternative A.

Impacts from Alternative F: Under this alternative water is expected to be a limiting factor. The only year-round waters are West and West Douglas Creeks, and five springs on the uplands. Competition between groups of horses is expected to force use of all water sources and increase use of West and West Douglas Creeks. This use would peak from mid-summer to late fall as ponds dry up. Livestock would continue to use West and West Douglas Creeks in the spring and fall. There would be an increase in growing season use by horses over an above the seasonal use that is currently occurring. This change in seasonal use is expected to degrade riparian habitat. Because of the inability of livestock to use the Texas Mountain area livestock use of Main-stem Douglas creek is expected to increase. Beaver dams will prevent livestock from moving up and down the channel, providing ungrazed stretches. On those areas accessible to livestock grazing use is expected to be severe.

Impacts from Alternative G: Horses would have access to West, West Douglas and Main-stem of Douglas Creeks. Cattle would not be present. Horse use would be year-long. On the northern end of the Herd Area the majority of the waters are stock ponds. On normal years these ponds dry up in early June and can be refilled by summer thunder showers. Main stem of Douglas creek normally flows through the summer but does not flow during drought years. During normal precipitation years horses are expected to increase their use of Main-stem Douglas creek during the summer months. There would be an increase in

growing season use of riparian vegetation which is expected to degrade these sites. On the southern part of the herd area impacts are expected to be as described in Alternative F.

Finding on the Standard for Public Land Health for Riparian Systems: Based on the impacts described for each alternative above, the standard for public land health for riparian systems will be affected as described in the following table:

Table 4.3: Finding on the Public Land Health Standard for Riparian Systems:

Watershed	Condition of Stream by Acres											
	Alternative A		Alternative B		Alternative C		Alternative E		Alternative F		Alternative F	
	Functioning	Not Functioning	Functioning	Not Functioning	Functioning	Not Functioning	Functioning	Not Functioning	Functioning	Not Functioning	Functioning	Not Functioning
West Creek	5	0	5	0	5	0	5	0	3	2	3	2
West Douglas Ck	10	0	58	0	58	0	58	0	48	10	48	10
Main Douglas Ck	24	0	24	0	24	0	24	0	24	0	12	12
Totals	**87**	**0**	**87**	**0**	**87**	**0**	**87**	**0**	**75**	**12**	**63**	**24**

4.7 Soils:

Impacts from Alternative A: Cottonwood Creek, Evacuation Creek and Douglas Creek watersheds were identified in the White River ROD/RMP as being fragile watersheds because a large amount of the soils present in these watersheds have characteristics of fragile soils (i.e. very high erosion potential, high salt content, slopes greater than 35%, and lack of vegetation cover that protects the watershed from overland flows). All 52,570 acres of fragile soils areas, which are protected from development impacts by CSU-1 in the current RMP, would be available for grazing. Until all wild horses are removed, competition between livestock and wild horses would continue. Forage deficits could develop as a result of this competition. This overuse would further deplete the vegetative cover, which is needed to protect soils from runoff and erosion and could cause long-term watershed problems. Overgrazing in any watershed would cause soil compaction, reduce infiltration, and decrease watershed stability. Improving the rangeland conditions and vegetation cover by removing wild horses and thus removing some of the current grazing pressure would reduce this depletion of vegetation, and therefore have a positive affect on watershed stability and soil productivity. Proper grazing practices (e.g. rest rotation, time of use) within sensitive watersheds are consequential in reducing erosion from both stream banks and upland sources. This alternative reduces grazing pressure by wild horses in the two soil stabilization projects that have been implemented within the Evacuation Creek watershed to slow soil erosion, improve vegetation cover and help reduce salinity levels to the Colorado River Basin.

There would be no additional stipulations for oil and gas development. Impacts from oil and gas development would be loss of the protective vegetation cover, possible increase in salt and sedimentation during storm events and soil compaction from trenching equipment. These impacts could continue until successful re-vegetation has occurred. These short-term impacts would also be expected from any surface disturbing activity.

Impacts from Alternative B: All 52,570 acres of fragile soils areas, which are protected from development impacts by CSU-1 in the current RMP, would be available for grazing. However, removal of wild horses and at the same time reducing the number of AUMs allocated to livestock would be even more advantageous to soil productivity and soil stability than Alternative A. This alternative would eliminate the year long grazing pressure because livestock are able to be managed to allow for pasture rest and rotation which would allow for better vegetation cover and productive soils.

This alternative reduces grazing pressure by both wild horses and cattle in the two soil stabilization projects that have been implemented within the Evacuation Creek watershed to slow soil erosion, improve vegetation cover and help reduce salinity levels to the Colorado River Basin.

Impacts from oil and gas development would be the same as Alternative A.

Impacts from Alternative C: The same area of fragile soils would be available for grazing as under Alternatives A and B. Under this alternative the horses would not be limited to any area but are expected to stay within their preferred habitat. The upper tributaries of Evacuation Creek are in the preferred horse habitat. Currently there are two soil stabilization projects that have been implemented within the Evacuation Creek watershed to slow soil erosion, improve vegetation cover and help reduce salinity levels to the Colorado River Basin. Allowing year round grazing in this fragile watershed would be in direct conflict with the objectives of the soil stabilization projects because the rangelands inside the preferred habitat area are expected to degrade as the number of horse's increases.

Stipulations to Oil and Gas development would prevent development on the majority of the Texas Mountain are, thus preventing a decrease in vegetation cover and short term impacts identified in Alternative A.

Impacts from Alternative E: This alternative encompasses all of the historic areas where horses have been found and would protect 6,150 acres of fragile soils from continued year long grazing, with 45,845 acres of fragile soils still available. The identified problems of vegetation health would be perpetuated. Since soil productivity is directly related to vegetation health, as the vegetation declines so will soil productivity. Season long grazing by horses would continue with no improvement in vegetation condition expected. Soil problems identified through the standards for public land health would increase proportionally with the increases in horses. Overgrazing by horses or cattle can modify soil properties through compaction, which can degrade soil structure, increase soil bulk density, and reduce water infiltration rates. A decrease in water infiltration means a loss of water available for plant use and an increased potential for soil erosion and surface runoff.

This alternative excludes the two soil stabilization projects that have been implemented within the Evacuation Creek watershed to slow soil erosion, improve vegetation cover and help reduce salinity levels to the Colorado River Basin.

Stipulations to Oil and Gas development would prevent development on the majority of the Texas Mountain area preventing a decrease in vegetation cover. Implementing CSU-11 for development of a corridor could increase vegetation cover providing more protection for soils resources and protecting an additional 4,002 acres of fragile soils. Implementing spacing limitations on the northern part of the horse range would maintain soil disturbance at current levels.

Impacts from Alternative F: Impacts would be the same as those described under Alternative C, but would be greater due to the increased wild horse population.

This alternative would allow grazing by wild horses on the two soil stabilization projects that have been implemented within the Evacuation Creek watershed. Allowing year round grazing in this fragile watershed would be in direct conflict with the objectives of the soil stabilization projects because the rangelands inside the preferred habitat area are expected to degrade as the number of horse's increases.

Stipulations to Oil and Gas development would prevent development on the majority of the Texas Mountain area preventing a decrease in vegetation cover, which protects soils resources.

Impacts from Alternative G: As described under Alternative A, 52,570 acres of fragile soils areas, which are protected from development impacts by CSU-1 in the current RMP, would be available for grazing. The identified problems of vegetation health and soil productivity would perpetuate. With the great increase in the number and distribution of horses over other alternatives, the degree and size of the area degraded

would expand. Season long grazing would continue with no improvement in vegetation condition expected.

This alternative would allow grazing by wild horses on the two soil stabilization projects that have been implemented within the Evacuation Creek watershed. Allowing year round grazing in this fragile watershed would be in direct conflict with the objectives of the soil stabilization projects because the rangelands inside the preferred habitat area are expected to degrade as the number of horse's increases.

Stipulations to Oil and Gas development would prevent development on the majority of the Texas Mountain area preventing a decrease in vegetation cover, which protects soils resources. Implementing spacing limitations on the northern part of the horse range would maintain vegetation disturbance at current levels.

Mitigation Measures: Adhere to the soil management objective established in the White River ROD/RMP, which is to prevent impairment of soil productivity due to accelerated erosion and physical or chemical degradation resulting from surface use activities. Management actions support the goals provided as indicators in Standard One of the Standards for Public Land Health.

Finding on the Public Land Health Standard for Soils: This standard states: upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate, land form, and geologic processes. Adequate soils infiltration and permeability allows for the accumulation of soil moisture necessary for optimal plant growth and vigor, and minimizes surface runoff. Indicators of this standard are: expression of rills and soil pedestals is minimal, evidence of actively-eroding gullies (incised channels) is minimal, canopy and ground cover is appropriate, with litter accumulating in place and is not sorted by normal overland water flow, there is appropriate organic matter in soil, there is diversity of plant species with a variety of root depth, upland swales have vegetation cover or density greater than that of adjacent uplands, and there are vigorous, desirable plants.

Season-long grazing (prolonged use during the growing and dormant seasons) is a primary cause of soils not meeting the Land Health Standards under all alternatives, except for Alternative B. In this alternative, removal of the horses and reduction in livestock use is expected to allow the soil the opportunity to improve and work towards achieving the standards. Table 4.4, below; lists the acres of public land within the herd area that would be expected to achieve this standard under each of the proposed alternatives. This table shows the anticipated impacts of wild horses and livestock on bottomland soils only. It is likely that additional upland soils would not meet this standard, but these acres are not included in this table because of the difficulty predicting the distribution of animal impact. These acres would not be additional to those identified in the vegetation section.

Table 4.4: **Land Health standard for Soils by Watershed**

	Acres Achieving/Not Achieving the Land Heath Standard by Alternative											
	Alternative A		Alternative B		Alternative C		Alternative E		Alternative F		Alternative G	
Watershed	Achieved	Not Achieved	Achieved	Not Achieved	Achieved	Not Achieved	Achieved	Not Achieved	Achieved	Not Achieved	Achieved	Not Achieved
Cottonwood	19,235	189	19,361	63	19,304	120	18,963	461	19,361	63	18,003	1,421
Douglas Ck	78,813	1,880	79,355	1,338	78,233	2,460	78,403	2,290	78,017	2,676	75,952	4,741
Evacuation	26,156	1,020	26,412	744	26,169	987	25,620	1,536	25,459	1,697	24,570	2,586
Hells Hole	846	0	846	0	846	0	846	0	846	0	811	35
Totals	125,050	3,089	125,974	2,145	124,552	3,567	123,832	4,287	123,683	4,436	119,336	8,783

4.8 Wilderness & Externally Identified Areas of Potential Wilderness Character:

Impacts from Alternative A:

Wilderness:

NATURALNESS: An increasing trend in naturalness would be expected with this alternative. After 2007, trends towards removal of native flora and dispersal of native fauna would generally decrease due to a lack of wild horse forage utilization and wildlife competition. As a result, the naturalness of the area would tend to increase.

SOLITUDE: Removal of wild horses typically would include use of helicopters during gathers, which would, for the duration of gather, impact wilderness users that could see or hear the helicopter. Under this alternative, this event would most likely occur only once during removal of all wild horses. However, it is possible that not all horses would be captured in a single gather, so it may be prudent to assume that multiple helicopter flights would be necessary which would increase the likelihood of impacting solitude. No such impact would occur after all horses have been removed.

PRIMITIVE & UNCONFINED RECREATION: It has been suggested, in similar areas where horse herd areas and WSAs coincide, that horses add to the primitive recreation experience as they add to the free and wild character of the landscape. However, horses were not identified in the intensive wilderness inventory as a supplemental wilderness value for Oil Springs Mountain WSA.

SPECIAL FEATURES: After the removal of wild horses, special features such as archeological sites would be less likely to be trampled or otherwise impacted. It is also expected that, following the removal of wild horses, the undisturbed diverse vegetation condition, which was a primary reason for the creation of the Oil Spring Mountain WSA, would improve. However, domestic livestock grazing would continue to cause similar impacts.

Externally Identified Areas with Wilderness Character: If naturalness, solitude and opportunities for primitive and/or unconfined recreation exist with the Externally Identified Areas with Wilderness Character (EIAWC), the impacts would be similar to those described above.

Impacts from Alternative B:

Wilderness:

NATURALNESS: Following removal of wild horses, the impact to native flora and fauna would be expected to decrease. As a result, an increasing trend of naturalness would be expected. In addition, the decrease in allowable domestic livestock AUMs would also be expected to decrease the impact to native flora and fauna, thus suggesting an increase in naturalness.

SOLITUDE: Impacts would be the same as those described under Alternative A.

PRIMITIVE & UNCONFINED RECREATION: Impacts would be the same as those described under Alternative A.

SPECIAL FEATURES: Impacts would be the same as those described under Alternative A.

Externally Identified Areas with Wilderness Character: Impacts would be the same as those described under Alternative A.

Impacts from Alternative C:

Wilderness:

NATURALNESS: This alternative allows for the continued utilization of preferred habitat by wild horses which include approximately 20% of the Oil Springs Mountain WSA. Continued wild horse utilization would further a trend of decreased naturalness with the loss of natives flora and a potential decrease of native fauna due to competition with wild horses. Noxious plant species would likely assume the place of native plant communities (see paragraph 4.8) and suggests that the integrity of the natural functioning ecosystem would be degraded in time. As a result, a general trend of decreasing naturalness would be expected with this alternative.

SOLITUDE: Periodic low flying helicopter gathers and census operations would occur at four year intervals during gather operations. This event would impact wilderness users by introducing the sight and sound of mechanized equipment which would disrupt the experience of solitude. Although this impact would be temporal, the impact would occur at regular intervals into the future thus having a greater probability to impact more wilderness users than under alternatives A and B.

PRIMITIVE & UNCONFINED RECREATION: Same as Alternative A, except horses would not be eliminated from the WSA.

SPECIAL FEATURES: Same as Alternative A, except horses would not be eliminated from the WSA.

Externally Identified Areas with Wilderness Character: If naturalness, solitude and opportunities for primitive and/or unconfined recreation exist with the Externally Identified Areas with Wilderness Character (EIAWC), the impacts would be similar to those described for Wilderness under this alternative.

Impacts from Alternative E:

Wilderness:

NATURALNESS: Following removal and fencing out of wild horses from the WSA, the impact to native flora and fauna diversity would decrease. An increasing trend of naturalness would be expected.

SOLITUDE: Impacts would be the same as those described under Alternative C.

PRIMITIVE & UNCONFINED RECREATION: Impacts would be the same as those described under Alternative A.

SPECIAL FEATURES: Impacts would be the same as those described under Alternative A.

Externally Identified Areas with Wilderness Character: Impacts would be same as those discussed in Alternative C.

Impacts from Alternative F:

Wilderness:

NATURALNESS: Continued wild horse utilization would further a trend of decreased naturalness with the loss of native flora and a decrease of native fauna due to competition with wild horses. As discussed in paragraph 4.8, noxious and other undesirable plant species would likely assume the place of native plant communities. This suggests that the integrity of the natural functioning ecosystem would be degraded in time. The proposed 14-mile long fence which bisects the WSA would certainly detract from the naturalness. It imposes a human imprint that is incongruent with the natural landscape that leads to the “trammeling” of wilderness character. The fence, in and of itself is allowable with certain caveats described within BLM’s Interim Management Policy for WSAs. However, the feature, in this case the

fence, must be temporary in nature. The fence, as described in this alternative, would have to remain in place so long as wild horses are managed within the legally described herd area. Therefore the fence would be a permanent feature. The fence is not being constructed to protect or enhance the native ecosystem; it is merely a containment tool to keep wild horses inside the herd area. Therefore, the construction of this fence would not comply with the Interim Management Policy. As a result of the impacts from wild horses, and construction of the proposed fence, there would be a general trend of decreasing naturalness with this alternative.

SOLITUDE: Impacts would be the same as those described under Alternative C.

PRIMITIVE & UNCONFINED RECREATION: Impacts would be the same as those described under Alternative A.

SPECIAL FEATURES: Impacts would be the same as those described under Alternative A.

Externally Identified Areas with Wilderness Character: Impacts would be same as those discussed in Alternative C.

Impacts from Alternative G:

Wilderness:

NATURALNESS: Impacts would be the same as those described under Alternative F.

SOLITUDE: Impacts would be the same as those described under Alternative C.

PRIMITIVE & UNCONFINED RECREATION: Impacts would be the same as those described under Alternative A.

SPECIAL FEATURES: Impacts would be the same as those described under Alternative A, except there would be a greater number of wild horses, and thus a greater potential for impact. There would be no impacts from livestock grazing.

Externally Identified Areas with Wilderness Character: Impacts would be same as those discussed in Alternative C.

4.9 Geology and Minerals:

Impacts from Alternatives A and B: There would be no impacts to geology and or minerals under these alternatives.

Impacts from Alternative C: Impacts to geology and minerals under this alternative would be limited to increased drilling and operational costs imposed under stipulations CSU-9 (11,501 acres), CSU-10 (24,511 acres), TL-12 (24,319 acres), TL-13 (15,488 acres), and LN-1 (123,387 acres) to be added to new leases issued after approval of the plan amendment. This would result, for the most part, from the need to directionally drill in order to maximize production. Based on data found in the Reasonable Foreseeable Development Scenario of the White River Resource Area Proposed RMP/Final EIS, these costs may be expected to increase by 20% and 9%, respectively. The ability to directionally drill notwithstanding, reduced well densities could potentially preclude the maximization of production on these new leases, but the extent to which this could occur is not known. Prospective lessees would, however, be aware of these stipulations prior to lease purchase, and could bid accordingly.

There would be no impact to existing wells and related production – these would continue to the same extent and degree as in the past. New oil and gas operations proposed on existing leases would receive site-specific review. Approved operations would be subject only to stipulations attached to the lease, and

conditions of approval identified through the site-specific review. These conditions of approval, which may include, but would not necessarily be limited to, access changes, gating, location moves and timing limitations, would be imposed only to the extent they comply with the standards set forth at 43 CFR 3101.1-2.

Impacts from Alternative E: Impacts to geology and minerals under this alternative would be limited to increased drilling and operational costs imposed under stipulations CSU-9 (11,501 acres), CSU-10 (63,021 acres), CSU-11 (8,937 acres), TL-12 (24,319 acres), TL-13 (15,488 acres), and LN-1 (123,387 acres) to be added to new leases issued after approval of the plan amendment. Note that CSU-10 would affect more acreage than in Alternative C, and that CSU-11 applies only to this alternative. Impacts would result, for the most part, from the need to directionally drill in order to maximize production. Based on data found in the Reasonable Foreseeable Development Scenario of the Proposed RMP/Final EIS, these costs may be expected to increase by 20% and 9%, respectively. The ability to directionally drill notwithstanding, reduced well densities could potentially preclude the maximization of production on these new leases, but the extent to which this could occur is not known. Prospective lessees would, however, be aware of these stipulations prior to lease purchase, and could bid accordingly.

There would be no impact to existing wells and related production – these would continue to the same extent and degree as in the past. New oil and gas operations proposed on existing leases would receive site-specific review. Approved operations would be subject only to stipulations attached to the lease, and conditions of approval identified through the site-specific review. These conditions of approval, which may include, but would not necessarily be limited to, access changes, gating, location moves and timing limitations, would be imposed only to the extent they comply with the standards set forth at 43 CFR 3101.1-2.

Impacts from Alternative F: Impacts to geology and minerals under this alternative would be limited to increased drilling and operational costs imposed under stipulations CSU-9 (11,501 acres), CSU-10 (24,511 acres), TL-12 (24,319 acres), TL-13 (15,488 acres), and LN-1 (123,387 acres) to be added to new leases issued after approval of the plan amendment. This would result, for the most part, from the need to directionally drill in order to maximize production. Based on data found in the Reasonable Foreseeable Development Scenario of the Proposed RMP/Final EIS, these costs may be expected to increase by 20% and 9%, respectively. The ability to directionally drill notwithstanding, reduced well densities could potentially preclude the maximization of production on these new leases, but the extent to which this could occur is not known. Prospective lessees would, however, be aware of these stipulations prior to lease purchase, and could bid accordingly.

There would be no impact to existing wells and related production – these would continue to the same extent and degree as in the past. New oil and gas operations proposed on existing leases would receive site-specific review. Approved operations would be subject only to stipulations attached to the lease, and conditions of approval identified through the site-specific review. These conditions of approval, which may include, but would not necessarily be limited to, access changes, gating, location moves and timing limitations, would be imposed only to the extent they comply with the standards set forth at 43 CFR 3101.1-2.

Impacts from Alternative G: Impacts to geology and minerals under this alternative would be limited to increased drilling and operational costs imposed under stipulations CSU-9 (11,501 acres), CSU-10 (63,021 acres), and LN-1 (123,387 acres) to be added to new leases issued after approval of the plan amendment. Note that CSU-10 would apply to the same acreage as it would under Alternative E. Impacts would result, for the most part, from the need to directionally drill in order to maximize production. Based on data found in the Reasonable Foreseeable Development Scenario of the Proposed RMP/Final EIS, these costs may be expected to increase by 20% and 9%, respectively. The ability to directionally drill notwithstanding, reduced well densities could preclude the maximization of production on these new leases, but the extent to which this could occur is not known. Prospective lessees would, however, be aware of these stipulations prior to lease purchase, and could bid accordingly.

There would be no impact to existing well operations and related production – these would continue to the same extent and degree as in the past. New oil and gas operations proposed on existing leases would receive site-specific review. Approved operations would be subject only to stipulations attached to the lease, and conditions of approval identified through the site-specific review. These conditions of approval, which may include, but would not necessarily be limited to, access changes, gating, location moves and timing limitations, would be imposed only to the extent they comply with the standards set forth at 43 CFR 3101.1-2.

4.10 Land Status and Realty Authorizations:

Impacts from Alternatives A and B: There would be no impact to land use authorizations, or the ability to site new authorizations, under this alternative.

Impacts from Alternative C: Buried linear facilities are allowed under this alternative. Impacts would be limited to increased costs, if any, related to stipulations imposed to meet the objectives of this alternative. See Paragraph 4.12 for acreages affected by stipulations. While these stipulations are specific to oil and gas operations, they would also be imposed on related right-of-way developments. Any increased costs that may result from timing limitations could be avoided through project planning. Those related to re-routing of facilities would generally be limited to the cost of additional pipe and equipment time, and cannot be determined at this time. Use of the designated corridors would not be affected.

Impacts from Alternatives E, F, and G: Buried linear facilities are allowed under this alternative. Impacts would be limited to increased costs, if any, related to stipulations imposed to meet the objectives of this alternative. While these stipulations are specific to oil and gas operations, they would also be imposed on related right-of-way developments. Any increased costs that may result from timing limitations could be avoided through project planning. Those related to re-routing of facilities would generally be limited to the cost of additional pipe and equipment time, and cannot be determined at this time. Affected areas would be greater under alternatives E and G, due to greater acreages for application of CSU-10, and the application of CSU-11 under Alternative E. Use of the designated corridors would not be affected.

4.11 Wildlife:

Impacts from Alternative A:

<u>Big game</u>

Near term removal of horses from the West Douglas herd area would dramatically reduce season-long grazing use from much of the Oil Spring/Texas Mountain complex that respectively supports 3 and 10 percent of the deer and elk summer habitats available in Game Management Unit (GMU) 21. It would also reduce collective ungulate grazing intensity by about 10% across nearly 10% of both the general deer winter ranges and elk severe winter ranges within the GMU. Reducing the overall grazing load through horse removal, would provide both immediate and longer-term indirect improvement in big game forage conditions throughout the year.

Big game summer use and fawning and calve-rearing habitats in the Oil Spring/Texas Mountain area are tied to the availability of water from a limited number of upland springs. Considering the attraction of water for all summer/fall grazers, 5957 acres of bottomland and mixed-shrub habitats within two miles of water are subjected to persistent growing season use. Accelerated declines in the availability of preferred herbaceous forage through concentrated grazing use, increasing complements of less palatable grazing-tolerant species, or deterioration of conditions amenable to soil moisture retention, reduces the prospects of deer or elk maintaining favorable nutritional status through the fawn or calf-rearing period. With removal of cattle from the Oil Spring/Texas Mountain area by early June, and without the continued influence of horses, the vigor, abundance, and variety of preferred big game forages is expected to improve. Horse removal would reduce average cumulative ungulate use in June, July, and August by 70%, easing

pressure on a limited herbaceous forage base in the short term and increasing the likelihood of long-term recovery of rangeland productivity and plant diversity in favored big game summer habitats. Particularly on the estimated 1600 acres of early seral bottomland and shrubland habitats in the East and West Texas and West Creek pastures, reduced growing season use would increase the vigor and seed production of native herbs and arrest and, in the longer term, reverse adverse shifts in herbaceous composition (i.e., annuals and warm season perennials), thereby increasing the availability of cool season grasses and broadleaf forbs important to elk and deer during the summer and fall.

Removing use attributable to horses would provide a buffer which would help stabilize current levels of cumulative ungulate use as deer population objectives are realized, reduce the potential for localized depletion of herbaceous forage and, consequently, the premature or exaggerated reliance of big game on woody forages. This effect would be especially evident on elk severe winter ranges where about 165 AUMs of horse use during June, July, and August would be removed.

Grouse

Horses make consistent year-round use of the open mountain shrub and sagebrush communities which comprise general summer, nesting and/or brood-rearing habitats for grouse in the Oil Spring/Texas Mountain area. Although improvements have been made in livestock grazing management, a recurring issue identified on each pasture during the latest grazing evaluation is the need to improve litter accumulation and increase the native component in understory composition. From the wildlife perspective, this issue indicates strong reductions in residual ground cover during the dormant season and/or late in the growing season, as well as persistent growing season use that suppresses plant vigor and competitiveness. Cumulative cover height reductions through July, particularly near water, are sufficient to substantially reduce the utility of brood and nest ranges. Alterations in the composition of herbaceous communities also involve increased expression of annual (cheatgrass, mustards), introduced (Kentucky bluegrass), or grazing tolerant (grama) species which fail to offer comparable persistence, structure, or production as substrate for invertebrate prey and/or supplemental cover for reproductive functions. At this point in time and under prevailing levels of big game, livestock, and horse use, the overall trend in herbaceous community condition is static or declining, implying that collective ungulate use is currently more intensive or more persistent than thresholds that would allow for recovery and/or improvement of understory conditions.

Removal of horses is expected to reduce the progressive decline of herbaceous cover on 2,400 acres of blue grouse nest and brood habitats in the herd area. Because cattle are removed by the first week of June, understory vegetation would be allowed up to 3 weeks to redevelop vertical cover more suitable for effective use by nesting birds and broods. Horse removal is expected to reduce collective ungulate use June through August by 70% and would prompt long term improvements in plant vigor, ground cover density, and help suppress the appearance of grazing tolerant species in understory composition.

Non-game

Removal of horses would reduce cumulative ungulate grazing intensity by 70% during the months of June, July, and August, initiating long-term improving trends in herbaceous vigor and density and allowing for redevelopment of herbaceous understories during the non-game reproductive season in those habitats that have been subjected to season-long grazing by horses in the Oil Spring/Texas Mountain area. Enhanced understory expression would be most evident on the nearly 6000 acres of bottomland and mixed-shrub habitats within 2 miles of water that receive concentrated ungulate use. Small and probably unremarkable declines in use intensity may also be extended to those 8000 acres of early and mid-seral rangelands in the herd area that receive concentrated livestock use at lower elevations in the herd area where increased residual material would enhance forage and cover availability for fall and winter use by small mammals and early spring cover for ground nesting birds. These improvements would extend to about 20% of similar habitat (i.e., sagebrush, mountain shrub, and saltbush) within GMU 21.

Reduced upland use attributable to horse removal would increase opportunities to redistribute spring cattle use from about 1 mile of West Douglas Creek. Reducing the intensity of use and trampling effects would

be expected to contribute to long-term improvements in channel and floodplain character that would favor expansion and improved continuity of woody and herbaceous riparian habitats for those birds (e.g., see migratory bird section) and mammals (e.g., bats, montane and long-tailed vole) associated with well developed riparian habitats.

Under this alternative, over 13,000 acres of bottomland and shrubland sites would persist in failing to meet Public Land Health Standard for vegetation (see paragraph 4.8). These acreages represent about 20% of like types within GMU 21. Although no structured avian population monitoring occurs in the herd area, there are no indications that avian communities or their associated habitats are being subjected to widespread or acute habitat modification that would adversely influence or jeopardize the viability of any regional population in the short term.

Small mammals associated with shrublands within the herd area (e.g., sagebrush and long-tailed vole, northern grasshopper mouse, Uintah chipmunk, Merriam's shrew) consistently display broad ecological tolerance, and no small mammal species is known to be strictly confined to those bottomland communities that are most significantly influenced by grazing use. Even with strong localized suppression of small mammal abundance on heavily used or modified sites, there are no indications that habitats are subject to broad-scale deterioration or that populations are becoming effectively isolated.

Impacts from Alternative B:

Big game

Horse removal and coincident 20-25% reduction in livestock use would decrease current overall ungulate grazing use within the herd area by 28% and eliminate season-long grazing regimens (10% of total current use) associated with the horses.

Improvements associated with the removal of horse use from the Oil Spring/Texas Mountain complex would be similar to that discussed in Alternative A, but beneficial advances in plant vigor and understory composition would be accelerated and expanded. Reductions in the number of cattle using the Twin Buttes allotment would increase opportunities to modify both the intensity and duration of grazing use in traditional heavy use areas, allowing improvements in the distribution, abundance, and quality of desirable herbaceous forage on an estimated 13,000 acres of bottomland and shrubland habitats and moderating overall grazing use levels across 30-40% of deer and elk winter ranges in GMU 21.

In the event big game populations gain State-desired objective levels in the future, overall grazing use levels (the bulk being dormant season use) would remain at least 15% below current levels.

Even though 9400 acres of predominantly big game winter range would remain in early seral condition (i.e., disclimax of annual/warm-season species) for the longer term, by regaining a large measure of discretion in seasonal grazing use patterns, BLM would have the means and opportunity to successfully intervene (e.g.., chemical control, supplemental seeding) in these cases.

Grouse

Alternative B would prompt improvements in understory character on grouse brood and nest ranges similar to those discussed in Alternative A, however, reductions in cattle use would tend to further reduce grazing use levels in May and June, retaining and allowing increasingly effective development of nest and brood cover conditions (i.e. accelerating community recovery, denser/higher cover earlier in the year and during drier years).

Non-game

The effects of horse removal on nongame habitats and populations would be similar to Alternative A in substance, but concomitant reductions in seasonal cattle use would accelerate the rate and degree of improvements to understory character by increasing periods of rest or moderating use levels. Understory

effects associated with this alternative would extend widely across the herd area, improving cover and forage remaining after grazing use on at least 13,000 acres of bottomland and shrubland habitats in the herd area (about 10% of like habitats within GMU 21) and restoring utility to at least 3900 acres of rangeland that had undergone deleterious compositional shifts to annual or grazing tolerant forms. Breeding birds associated with a desert-scrub and mesquite-grassland in southern Arizona responded to two- to four-fold increases in herbaceous vegetation density by increasing in abundance by 35% and 87% within four years (Krueper et al, 2002). It is reasonable to assume that shrub-steppe bird communities in the West Douglas Herd Area would respond to understory improvements attributable to this alternative, at least near the lower end of this range.

Similar to Alternative A, reductions in upland use attributable to horse removal and livestock AUM reductions would substantially increase opportunities to redistribute cattle use from West Douglas Creek. Reducing the intensity of use and trampling effects would contribute to long-term improvements in channel and floodplain character that would favor expansion and improved continuity of woody and herbaceous riparian habitats for those birds (e.g., see migratory bird section) and mammals (e.g., bats, montane and long-tailed vole) associated with well developed riparian habitats.

Impacts from Alternative C:

Big game

This alternative would maintain habitat conditions in a state similar to that which currently exists. Reductions in horse populations would, on average, reduce cumulative summer (June through August) grazing intensity on deer and elk summer habitats associated with the Oil Spring/Texas Mountain complex by about 30%. However, the effects of season-long grazing regimens (representing about 7% of total grazing use) associated with the horses would be expected to maintain current understory characteristics on those summer use habitats presently preferred by horses (i.e. 3665 acres of bottomland and shrubland habitats). Under prevailing levels of big game, livestock, and horse use, understory character in preferred horse use areas continues to regress, implying that collective ungulate use is currently more intensive or more persistent than thresholds that would allow for recovery and/or improvement of understory conditions. Lower numbers of horses would intermittently allow for increased herbaceous growth in these shrubland and bottomland sites, but persistent season-long use on these favored sites would retard or preclude community-level advances in plant density, ground cover, or herbaceous composition.

Progressive conversion of cool-season bunchgrass communities to annual, grazing tolerant, or warm season forms would continue at a rate perhaps half that of current. These community conversions are considered long term and stable (i.e., difficult to reverse), and it is likely that annual or grazing tolerant components would persist relatively unchanged in the community through those intervening years when horse numbers were at the lower end of the AML range.

With reductions in cattle use, overall grazing use levels outside key horse use areas may be somewhat comparable to Alternative B (reduced from current by 20-25%), but static trends in forage availability at upper elevations (key horse areas) would tend to stall progress in abbreviating spring livestock use of lower elevation pastures. Continued season-long grazing regimens on higher elevation ranges and sustained spring livestock use on big game winter ranges would tend to counteract, to an undetermined degree, benefits associated with reduced cumulative use.

Application of CSU 9 would involve nearly one-third the herd area's big game summer and severe winter ranges, representing 1-3% of those ranges available in GMU 21. This stipulation would have limited short-term efficacy in helping to maintain habitat integrity on leases held by production or within the WSA. In the longer term, this stipulation may help reinforce maintenance of about 1,000 acres of summer range habitat character within the WSA (0.5 to 1% of the GMU summer range extent, including about 370 acres of fir stands). The road density objective of 1.5 miles per square mile is consistent with that currently applied to big game critical habitats (e.g. critical summer ranges). Limited advantage would be gained in those instances where reduced road density limits are applied outside big game critical habitats, extending

application to an additional 17993 acres of big game winter range, or 4% of big game winter range available in GMU21.

The TL 12/13 limitation dates applied to key winter and summer horse habitats are similar to those established for important big game winter (i.e., severe winter range) and summer range use. Seasonal horse stipulations would generally complement big game summer uses and would offer winter use protection on up to 13,000 acres of general big game winter range (3% of that available in GMU 21). Conversely, because of disparities in seasonal range preference, summer timing limitations for horses that extend onto big game winter range would work to exaggerate winter development activity on up to 21,600 acres of big game winter ranges (5% of those available in GMU 21) that are either not protected (deer general winter range) or provisionally protected (elk severe winter range) by a winter range stipulation. By minimizing the installation of oil and gas facilities and promoting a degree of solitude, these favored horse use areas are expected to function at diminished capacity as big game seasonal habitats (e.g., behavioral displacement, declining availability of favored herbaceous forage).
Similarly, application of CSU 10/11 would likely have limited short-term application in limiting pad density on leases held by production or within the WSA. Although a ROD/RMP big game decision presently establishes a road density objective of 3 miles/square mile on all big game winter ranges, horse-related values may offer added impetus in implementing these objectives in the short term (i.e., gated access during ongoing gas development). This stipulation would also establish a maximum pad density of 4 per section on a limited number of leases in and around the Oil Spring WSA that could support as many as 16 wells per section (i.e. reducing surface occupation by up to 75%).

The provisions within Lease Notice 1 call for vegetation treatments to offset forage impacts to horses from mineral development within the herd area. Forage compensation measures would be subject to applicable big game and grouse habitat objectives and management decisions (e.g., cover distribution and forage retention) established in the White River ROD/RMP (pages 2-26 to 2-32), as well as riparian decisions (ROD/RMP page 2-15) that pertain to upland spring sites. These decisions strive to maintain or enhance the long term utility and availability of important wildlife forage and cover resources. ROD/RMP decisions allowed for about a 10% reduction in long term habitat capacity for woodland obligates in the Douglas Geographic Reference Area (which incorporates the entire herd area) with projected average cumulative canopy modifications of about 900 acres per year. Woodland treatments in excess of about 250 acres per year would exceed the long term stand regeneration regimen and reduce the availability of mature woodland habitat for non-game animal communities.

Similarly, the lease notice calls for the development of additional waters within the herd area when horse use of existing sources are compromised by development. Implementing this provision would likely increase the long-term availability and persistence of waters, many likely to involve big game winter ranges, thereby expanding to an undetermined degree, the extent, duration, and intensity of grazing use by horses on herbaceous forage supplies (grouse, fall/spring elk and deer use) and residual ground cover (grouse, nongame wildlife) in the herd area.

On those limited number of leases not held by production or in the event the WSA is released for multiple use, CSU 9 and 10 would help limit the extent and density of natural gas facilities that reduce the size and/or continuity of woodland stands (e.g., roads, pads). These stipulations would also appear to offer similar advantage in reducing long-term occupation or modification of grouse brood and nest habitats, however, much of this value would likely be countered by the effects of continued or increasing levels of season long grazing attributable to horses in preferred sagebrush and mountain shrub communities.

Grouse

Horses would continue to make consistent season-long use of grouse brood and nest habitats in the Oil Spring/Texas Mountain area. As discussed in the big game section for this alternative, reductions in horse populations would, on average, reduce cumulative ungulate use during the late nest and brood period by about 30%. However, progressive reduction of herbaceous ground cover during the brood season would be triple that of Alternative B and the effects of season-long grazing regimens associated with the horses would be expected to maintain current understory characteristics on those 2,400 acres of shrubland brood

habitats such that little improvement in herbaceous plant vigor, ground cover density, or understory composition is expected. It is likely that the utility of grouse brood or nest habitat would remain static under this alternative. Under this alternative, cumulative ungulate use of shrubland and bottomland habitats would remain inconsistent with the RMP objective for herbaceous cover on grouse brood and nest habitats, as follows:

> -Livestock and big game management techniques will be used to retain ≥50% herbaceous growth by weight through September 15 on grouse brood and nest habitats. (RMP ROD page 2-32)

Non-game

Because there are no effective or practical means of regulating the timing or distribution of horse grazing use patterns, their effects on vegetation can only be diluted across a landscape. Potential efforts to enhance or compensate forage-related effects on these critical big game summer range (as well as grouse) habitats would almost certainly entail large-scale woodland conversions to gain notable improvements in ground cover that would meet Rangeland Standard 3 for wildlife. Assuming the design of these conversions remained consistent with RMP big game habitat objectives, the abundance and distribution of nongame species affiliated with mature woodland canopies would be subjected to long term (several hundred year) modification more or less proportional to the reduction of the woodland base.

Nongame bird and mammal populations would be expected to remain static under this alternative. Although reductions in grazing use attributable to cattle and horses is expected to reduce overall grazing intensity, use that continues to employ current patterns of growing season use would fail to initiate long-term improving trends in herbaceous vigor, composition, and density.

Understory expression on those 3,665 acres of grassland and shrubland habitats associated with Oil Spring and Texas Mountain's preferred summer horse use areas is expected to undergo temporary improvement when horse populations are low, but the change in livestock use is not considered dramatic enough to elicit long-term improvements in community composition, plant density, or the accumulation of residual herbage through the winter. At lower populations, horse distribution is expected to remain centered on preferred habitats near Texas Mountain. In the absence of further use by horses, reductions and redistribution of livestock across the herd area's lower elevation bottomlands would be expected to moderate grazing use intensity during the winter and spring. Declining spring use would help initiate improving trends in plant vigor and production and may allow modest increases in residual ground cover on those 8000 acres of early and mid-seral shrublands, but these effects are not expected to markedly influence the current distribution or abundance of nongame birds or mammals in the herd area.

Reduced upland use attributable to horse reductions may afford limited opportunity to redistribute spring cattle use from the 1 mile segment of West Douglas Creek, but it is unlikely that minor changes in use would result in substantive benefits to riparian and aquatic habitat conditions (as discussed in Alternative A).

Under this alternative, it is expected that 10,895 acres of bottomland and shrubland sites would persist in failing to meet Public Land Health Standards for Plant Communities (see paragraph 4.8). These acreages represent about 15% of like types within GMU 21. Similar to the discussion in Alternative A, this alternative poses no risk of jeopardizing the viability of any nongame animal population.

Impacts from Alternative E:

Big game

Fencing horses out of the Oil Spring WSA would eliminate horse-related influences on about 5,200 acres of big game summer range--half that currently involved. The remaining 5,700 acres of big game summer range (about 5% of that available within GMU 21) and 16,000 acres of surrounding big game winter range providing suitable summer range conditions for horses would likely be occupied, at least in the short-term, at densities limited only by intraspecific tolerance and would be subjected to exaggerated growing season use. Because current levels of growing season use on Texas Mountain are inconsistent with the

maintenance of well developed herbaceous understories, it is inevitable that the utility of big game summer ranges on Texas Mountain under this alternative would rapidly diminish, both in terms of big game acquiring sufficient nutrition and heightened levels of antagonistic displacement from high horse densities. Because of horse domination of Texas Mountain, future efforts at treating woody vegetation to enhance the distribution and extent of herbaceous forage sources for big game summer use in the Texas Mountain area would be futile.

Twenty-four percent of cumulative grazing use within the herd area would be attributable to season long grazing by horses concentrated initially around Texas Mountain. Proposed livestock forage reductions on the Twin Buttes allotment would fail to fully compensate for declining suitability of the Texas Mountain core area for livestock operations (i.e., season-long use). Particularly during periodic highs in horse populations, cattle would be forced to make longer duration use of lower elevation winter pastures - negating management gains made during recent development of the Twin Buttes Allotment Management Plan. It is estimated that cattle would be required to remain on these ranges until mid-June - a date that precludes sufficient growing season rest for sustained plant vigor and forage productivity. The development of reliable waters to accommodate this use would certainly be exploited by dispersing bands of horses, thereby compounding inappropriate seasonal grazing use and further expanding sedentary season-long use of these arid ranges by bands of horses.

These influences would be widely felt on 30-40% of the big game winter ranges available in GMU 21, particularly in bottomland situations. It is estimated that approximately 10,000 acres of these shrubland ranges in the northern half of the herd area would fail to meet Public Land Health Standards for Plant Communities (see paragraph 4.8). These high use areas would likely hold little value in supporting spring, winter, or fall big game forage use, except during the brief emergence of cheatgrass in early spring.

Consequences of the proposed surface stipulations would be the same as under Alternative C.

Grouse

Removing horses from the WSA would eliminate horse-related influences on 50% (1180 acres) of suitable grouse brood and nest habitats within the herd area. These habitats would be expected to respond in the same manner as presented in Alternative B. Grouse brood and nest use of shrubland types remaining within the herd area would be foregone. It is anticipated that heavy grazing use May through September would reduce herbaceous forage availability and cover density and height in these shrubland types sufficient to preclude their utility as grouse cover (about 3-4% of available habitat in GMU 21). Future efforts at treating woody vegetation to enhance the distribution and extent of shrubland types as grouse brood habitat in the Texas Mountain area would be futile.

Non-game

Fencing horses from the Oil Spring WSA would eliminate horse-related influences on about 1200 acres of sagebrush and mountain shrub habitats that currently sustain considerable growing season use by horses and big game. Similar to the discussion for Alternative B, removal of horses would reduce nest season use (June, July, August) intensity by 70% and should result in strong redevelopment of herbaceous understories in these areas with subsequent increases in those insectivorous and ground nesting birds and small mammals that prefer well developed understories and residuals (e.g. sagebrush vole, Virginia's warbler). The remaining 4800 acres of shrubland communities within 2 miles of water in the Texas Mountain area (about 10% of like types in herd area) would be subjected to heavy grazing use May through September that would suppress herbaceous forage availability and cover density and height sufficient, it is thought, to depress current breeding densities of nongame birds and mammals. In a regional sense, habitat gains made within the Oil Spring WSA would partially offset declines in population reductions in the vicinity of Texas Mountain.

Nongame communities associated with the herd area's lower elevation shrublands would generally remain static in the short term, with populations responding to a slow accumulation of bottomland and associated upland habitats in declining condition. Particularly during periodic highs in horse populations, cattle would

be forced to make longer duration use of lower elevation winter pastures. Cattle use is expected to persist through mid-June and would overlap substantially with the nongame reproductive season. The development of reliable waters to accommodate horse and livestock at lower elevations during the drier months would compound inappropriate seasonal grazing use and further expand sedentary season-long use of these arid ranges by bands of horses. Persistent growing season use on these big game winter ranges tends alter the composition of herbaceous communities, with increasing expression of annual (cheatgrass, mustards), introduced (Kentucky bluegrass), or grazing tolerant (grama) species which fail to offer comparable persistence, structure, or production as substrate for invertebrate prey and/or supplemental cover for reproductive functions. Reductions in the availability of intervening herbaceous cover, as forage and cover during nesting and the rearing of young, would be most evident on about 10000 acres of bottomland and basin areas that are projected to not meet Public Land Health Standard for Plant Communities north of the East and West Texas pastures (see paragraph 4.8). It is believed that current nongame populations would persist at densities well below potential on these sites, which comprise about 8% of shrubland types available in GMU 21.

Because there are no effective or practical means of regulating the timing or distribution of horse grazing use patterns, their effects on vegetation can only be diluted across a landscape. Potential efforts to enhance or compensate forage-related effects on these critical big game summer range (as well as grouse) habitats would almost certainly entail large-scale woodland conversions to gain notable improvements in ground cover that would meet Rangeland Standard 3 for wildlife. Assuming the design of these conversions remained consistent with RMP big game habitat objectives, the abundance and distribution of nongame species affiliated with mature woodland canopies would be subjected to long term (several hundred year) modification more or less proportional to the reduction of the woodland base.

Until an anticipated redistribution of horses across the herd area, grazing-related impacts to West Douglas and West Creek would increase in intensity, if not in extent. It is expected that up to 2 miles of West Douglas (about 15-20% of channel length on BLM) and 1.25 miles of West Creek would be subjected to increasingly prolonged and frequent use by cattle and horses. These effects are not expected to compromise channel integrity or influence adjacent reaches, but reductions in the height and density of herbaceous cover on the floodplains and, most importantly, reduced shrub height, foliar volume, and stem density of willow would substantially reduce the utility of these stands as nongame bird and mammal breeding habitat. These effects would likely remain confined to intermittent parcels along the channels and reductions in the abundance of species obligate to riparian habitats would likely be somewhat proportional to the extent of habitat affected.

Impacts from Alternative F:

<u>Big Game</u>

This alternative would confine horse distribution to the Oil Spring/Texas Mountain complex. This management option would have affects on big game similar to the near-term under Alternative E, but with no opportunity for horses to disperse and establish a presence on extensive lower elevation ranges.

Horse-related influences would extend across big game summer range and elk severe winter ranges at levels comparable to Alternative C (i.e., 2% and 9% of summer range extent in GMU 21 for deer and elk respectively, 8% of elk severe winter range), but in removing the northern half of the current herd area, far less big game winter range would be available for occupation by horses (i.e. 12% rather than 30-40% of the big game winter ranges available in GMU 21). The horse populations using the Oil Spring/Texas Mountain complex would average 50% greater than that which has been sustained over the last 10 years, and would peak at double that level.
Cumulative ungulate grazing under a regimen of season-long grazing (representing about 32% of total grazing use) associated with increasing number of horses in a modified herd area would be expected to result in consistent and heavy use of herbaceous forage in much of the saltbush and all available sagebrush, mountain shrub, and grassland sites (about 8200 acres or about 7% of that available within GMU 21). As with Alternative E, it is inevitable that the utility of big game summer ranges and elk severe winter range associated with the Oil Spring/Texas Mountain complex would rapidly diminish, both in terms

of big game acquiring sufficient nutrition and heightened levels of antagonistic displacement from high horse densities. Because of horse domination of the Oil Spring/Texas Mountain area, future efforts at treating woody vegetation to enhance the distribution and extent of herbaceous forage sources for big game seasonal use in this area would be futile.

Consequences of the proposed surface stipulations would be the same as under Alternative C.

Grouse

Grouse brood and nest use of shrubland types within the herd area would be foregone (i.e., 7% of like habitat within GMU 21). It is anticipated that heavy grazing use May through September would reduce herbaceous forage availability, cover density and height, and residual aftermath in these shrubland types sufficient to preclude their utility as grouse nest or brood cover. Future efforts at treating woody vegetation to enhance the distribution and extent of shrubland types as grouse brood habitat in the Texas Mountain area would be futile.

Non-game

Cumulative ungulate grazing that includes influential season-long grazing associated with increasing number of horses would be expected to result in consistent and heavy use of herbaceous forage in much of the saltbush and all available sagebrush, mountain shrub, and grassland sites within the modified herd area (8200 acres, about 7% of that available in GMU 21).
It is anticipated that heavy and consistent spring through fall grazing use would reduce herbaceous forage availability, cover density and height, and residual aftermath in these shrubland types sufficient to seriously impair the utility of these communities for occupation by species preferring well developed herbaceous understories (e.g., sagebrush vole, Virginia's warbler). It is reasonable to assume that overall nongame abundance would be suppressed on these sites, and use would be largely relegated to those shrubland animals more tolerant of grazing use that significantly reduces the height and horizontal density of intervening herbaceous cover (e.g., vesper sparrow, deer mouse, least chipmunk).

Similar to Alternative E, nongame communities associated with the lower elevation shrublands would generally remain static, with populations responding to a slow accumulation of bottomland and basin habitats in declining trend from persistent spring use by cattle. Reductions in the availability of intervening herbaceous cover, as forage and cover during nesting and the rearing of young, would be most evident on about 13,000 acres of bottomland and basin areas that are projected to not meet Public Land Health Standard for Plant Communities (see paragraph 4.8).

Overall, it is likely that nongame populations would persist at densities well below their potential on at least 22,000 acres throughout the original herd area (about 18% of bottomland and shrubland habitats available in GMU 21.

Similar to the discussion in Alternative E, grazing-related impacts to West Douglas and West Creek would increase in intensity. Two miles of West Douglas (about 15-20% of channel length on BLM) and 1.25 miles of West Creek would be subjected to increasingly prolonged and frequent use by cattle and horses sufficient to render intermittent reaches of these systems nonfunctional. Although the direct and short term influence of concentrated livestock use on nongame animals would be similar to that expected in Alternative E, these degraded inclusions would be capable of adversely influencing upstream and downstream stream function and riparian expression in the long term. Although channel bed levels and ponding are strongly influenced by beaver activity, these systems rely solely on vegetation-derived bank stability. Sediment discharges that exceed that capability of the system (i.e., originating from deteriorating banks on heavily grazed sites) would likely prompt a series of degrading effects that would progressively reduce the extent and quality of habitat for riparian-associated animals. The more influential effects would probably involve declining duration and lateral availability of soil moisture for support of riparian vegetation (i.e., reductions in the effective life of beaver ponds and increased frequency of dam failures, channel downcutting), and the decreased availability and extent of suitable willow and dense herbaceous habitats (i.e., increased use of willow by beaver for dam repair and reconstruction, expanded bank cutting/lateral

channel cutting from excessive sediment deposition and reduced width:depth ratios). It is not possible to predict the extent or degree of these indirect effects.

Impacts from Alternative G:

Big Game

This alternative involves maintaining a horse population averaging three times the current population, across the full extent of the present herd area. Since livestock would be removed from the herd area, season long grazing regimens would prevail (73%). It is estimated that about 31,000 acres, or 25% of the herd area would fail to meet Public Land Health Standard for Plant Communities (see paragraph 4.8). This affect is indicative that, over time, any semblance of summer range utility for big game within the herd area (i.e., 3% of deer, 10% of elk) would be foregone. It is believed that winter range functions, too, would be seriously impaired. Big game reliance on these ranges (30-40% of range extent in GMU 21) to provide a diverse source of herbaceous forages in the fall (preparatory to winter's nutritional deficits) and spring (winter recovery and preparatory to gestation) would fail to be met as these lower elevation ranges were increasingly degraded by inappropriate levels of growing season use. Impacts of this magnitude would subvert any potential to realize State-desired big game population objectives.

Consequences of the proposed surface stipulations would be the same as under Alternative C.

Grouse

Impacts would be the same as those described under Alternative F

Non-game

Nongame communities associated with all shrubland and grassland communities within the herd area would be subjected to profound reductions in understory expression. It is estimated that about 31,000 acres would fail to meet Public Land Health Standard for Plant Communities (see paragraph 4.8), indicating pervasive grazing-induced proliferation of annual weeds or establishment of grazing-tolerant components. Heavy growing season use would suppress the availability of seed, reduce the carryover of herbaceous residual to inconsequential proportion, and suppress the vigor and diversity of herbaceous understories. The proliferation of annual weeds on these lower elevation ranges would initiate a progressive long term decline in range productivity that would be manifested ultimately in the inability to support species requiring well developed understories and general suppression in the abundance and distribution of all nongame animals in the herd area (22% of GMU 21).

Although pinyon-juniper associates would remain relatively unaffected by direct grazing-related effects under all previous alternatives, the scope of impacts associated with this alternative would likely extend to woodland habitats and adversely affect the density of ground-nesting, insectivorous, granivorous, and raptorial species in these woodlands (e.g., spotted towhee, gray flycatcher, chipping sparrow, and accipitrine hawks). Attempts at distributing horse use across the herd area (e.g., water developments) and moderating the effects of pervasive season-long grazing (e.g., woodland conversions) would likely have strong influence on woodland associates (similar to that discussed in Alternative C), and would introduce spring and summer horse use into those juniper habitats on the northern fringe of the herd area that support gray vireo.

Livestock and horse-related grazing effects on riparian habitats on West Douglas and West Creek would be similar to those discussed in Alternative F, but regression of channel conditions to a nonfunctional state would extend to the mainstem of Douglas creek (about 2.5 miles, or about 15% of the mainstem channel). Overall, concentrated grazing use and trampling damage throughout the year has potential to directly influence up to 50 acres of willow and dense herbaceous riparian habitats in the Douglas Creek system as nongame bird and small mammal habitat. It is anticipated that direct and indirect riparian and channel effects would seriously degrade a minimum 20% of the riparian habitats associated with the mainstem and West Douglas system in the long term.

Finding on the Public Land Health Standard for plant and animal communities (partial, see also Vegetation, section 4.8):

In short, Public Land Health Standard 3 (for animals) calls for maintenance of resilient and diverse animal communities composed of viable populations that are appropriate to the habitat's potential.

Cumulative ungulate grazing that adversely modifies the availability of suitable forage or cover properties derived from herbaceous understories is addressed throughout the environmental consequences sections above. The effects of these impacts vary spatially, temporally, and by degree of intensity, but in general, habitat utility and the capacity of a habitat to support a diverse assemblage of animals declines as: 1) the community is increasingly represented by non-native and grazing tolerant forms and weeds, and 2) ground cover becomes increasingly uniform in composition, sparse in density, and low in stature. Though likely minimums as applied to wildlife habitats, degraded vegetation conditions that are likely to have prompted substantial reductions in animal abundance and reproductive capacity, that have reduced the extent and continuity of suitable habitat, and simplified the composition of animal communities are adequately represented by those acreages not meeting vegetation standards (see Table 4.2, Section 4.8).

In summary, Alternative A has potential to improve herbaceous understory conditions on higher elevation shrublands associated with Texas and Oil Spring Mountains; whereas habitat conditions across lower elevation portions of the herd area would remain relatively static. Alternative B is expected to offer substantive positive changes in understory composition, vigor, and density within a several decade timeframe. Even though large acreages would remain in a suboptimal state over the analysis period, strong reductions in season-long grazing use patterns and overall grazing use intensity predisposes these areas to successful management intervention in the future. Alternative C would generally maintain the current state of wildlife habitats in the larger herd area, although nominal improvements in herbaceous understory conditions could be expected over a several decade period. Alternatives E, F, and G present varying levels of decline in community health and reduced abundance of those species associated with well developed herbaceous ground cover. Alternative G is the only alternative that would likely precipitate well defined lapses in habitat continuity (i.e., fragmentation) and species distribution (e.g., localized extirpation).

4.12 Migratory Birds:

Impacts from All Alternatives: This document analyzes alternative forms of horse management in West Douglas, but authorizes no activities that risk the take of migratory birds or their nests. Inventory and gather operations commonly involve the use of aircraft and considerable ground activity, but these activities are relegated to winter and late summer (August), respectively. On the ground projects that may attend horse management in the future include: fence construction and fenceline clearing (Alternatives E, F, and G) or vegetation treatments (e.g., prescribed fire, mechanical treatments; primarily Alternatives C, E, F, G). These projects involve the clearing and removal of nest substrate and are typically conducted during the summer months that coincide with the nesting season. The need for project work, as well as its eventual scope and location, are undefined at this level of NEPA and would vary according to the alternative, but would invariably involve modification of shrubland or woodland habitats where nesting efforts are well distributed from late May through mid July. The potential impacts and risks to breeding migratory birds would be analyzed and mitigated, where appropriate, during project planning and EA analysis for individual projects.

4.13 Threatened and Endangered Animals:

Impacts from All Alternatives: None of the alternatives would adversely influence listed, proposed, or candidate animal species or associated habitat. Sensitive species will not be discussed individually, but will be evaluated, where applicable, in conjunction with terrestrial nongame discussions.

4.14 Threatened and Endangered Plants:

Impacts from All Alternatives: All of the rare and sensitive plant species described in the Affected Environment section are narrow endemics of the Green River Geologic formation. This geologic formation is found along the western edge of the Herd area and on Texas and Oil Springs Mountains. The sites on which the plants are found provide little in the way of forage and are not used by livestock or wild horses. Alternatives F and G would limit and confine the area being used by livestock and or wild horses. This could affect the sensitive plant species in the area by increasing usage which could affect the plants ability to reproduce and sustain its population. If populations are found, and monitoring shows that there impacts resulting from grazing, these populations would be protected. Any proposal for protection of these narrow endemics would require completion of an environmental assessment, which would determine the best means of protection.

Mitigation Measures: Threatened, endangered and sensitive plant species found would be inventoried and monitored to determine their location and density. Populations determined to be impacted by management would be protected or avoided.

4.15 Recreation: Discussions with respect to primitive recreation impacts for all alternatives are discussed in section 4.7 Wilderness.

Impacts from Alternatives A and B: The affects to most recreational activities would be expected to be negligible with the exception of horse viewing and big game hunting. By removing horses the opportunity to view them will obviously be impacted within the herd area. However, other horse viewing areas are available, such as the Piceance/East Douglas herd management area to the east.

If removal activities utilizing helicopters occur during the fall big game hunting seasons (September through November), the impact on the recreational experience to those hunters that are within sight or sound of the helicopters would be very negatively impacted. As Game Management Unit (GMU) 21 is a draw area for mule deer this experience may be one of a lifetime for the hunter and the helicopter sight and sound is not only a personal distraction it creates perception that the constant sight and sound of the machinery will disrupt the movement of the animals making the hunt that much more difficult. Adding to the difficulty of the hunt with external unnatural activities, such as helicopter overflights, has historically caused a significant number of complaints not only from the public, but also from agencies that are charged with managing the big game populations.

As this impact should happen for the period until all wild horses are removed, it would cease following final removal operations. The short term impacts to the hunting recreational experience would be suggested to be great yet not having further gather operations in the future would ensure no persistent impacts from helicopter use would detract from the recreation experience for perpetuity.

Impacts from Alternatives C, E, F, and G: The affects to most recreational activities would be expected to be negligible. However, the potential impact to hunters during gather operations, as described under Alternatives A and B, would continue indefinitely. The potential for this impact would increase with increased number of horses to be gathered, since this would be directly related to the amount of time The opportunity to view horses would be maintained and increase along with the increased number of horses.

4.16 Visual Resources:

Impacts from Alternative A: No impacts, all VRM objectives described in the RMP will be maintained.

Impacts from Alternative B: No impacts, all VRM objectives described in the RMP will be maintained.

Impacts from Alternative C: No impacts, all VRM objectives described in the RMP will be maintained.

Impacts from Alternative E: No impacts, all VRM objectives described in the RMP will be maintained.

Impacts from Alternative F: Impacts to VRM objectives would be limited to the proposed fence which would bisect the Oil Spring WSA. The Oil Spring WSA is managed as VRM class I to preserve the current visual character of the WSA. It is unlikely that the fence would be noticed by the casual observer as no clearing would be completed in order to construct and maintain the fence. VRM objectives described in the RMP would be maintained. If fence right-of-way is cleared of vegetation, VRM class I objective will most likely not be met.

Impacts from Alternative G: Impacts would be the same as under Alternative F.

Mitigation Measures: If fence is constructed within VRM class 1 area, no clearing of vegetation should be allowed.

4.17 Cultural Resources:

Impacts from Alternative A: Trampling, rubbing, and scratching on built cultural features such as wickiups or cabins from livestock and wild horses would continue to occur. These impacts would be more evident around water and in areas of thermal cover, such as within pinyon-juniper forests, where it is expected that horses and livestock would congregate. There is a strong correlation between cultural site locations, and the presence of water and pinyon-juniper forests. Impacts from wild horses would increase as herd population grows, and decrease as herd population is reduced after gathers. Impacts from horses would cease after total herd removal in 2007. There would also be continued potential for oil and gas development to damage or destroy unidentified cultural sites. Oil and gas development also may increase potential for illegal artifact excavation and collection due to increase site visibility and accessibility that results from road, pipeline, and well pad construction

Impacts from Alternative B: Impacts to cultural resources from wild horses would be the same as described for Alternative A, and would cease upon effective removal of horses from the herd area. The 20% reduction in available AUMs suggests that impacts to cultural resources from trampling and scratching/rubbing would be slightly reduced, especially in those areas of animal concentration (livestock or horses) such as around water sources or areas of thermal cover. However, since livestock numbers would only be reduced by a total of 220 head from the current situation on the two allotments in the herd area under this alternative, impacts from livestock grazing, similar to those described for wild horses, would continue at essentially the same rate as under Alternative A.

Impacts from Alternative C: Establishment of an AML range of 29 to 60 wild horses, a reduction from the current population of 60 to 151 horses, and restricting the herd to the preferred habitat area surrounding Texas Mountain (Figure 2-1) would effectively eliminate wild horse related impacts from the rest of the current herd area. All horse related impacts would be concentrated in the current preferred habitat surrounding the Texas Mountain area and, even with the reduced numbers, would remain the same as those previously described under Alternative A above, within the reduced area. The slight reduction in livestock grazing would result in a slight reduction in related impacts. Additional stipulations on new oil and gas leases which either prohibit surface occupancy, or place limits on surface disturbance or reduce well pad spacing would reduce potential impacts to cultural resources from oil and gas development. Stipulations limiting road densities and thus access into the area would reduce impacts to sites from road building and potentially reduce illegal artifact collection or excavation by reducing site visibility and accessibility. Current stipulations regarding inventory for cultural resources at trap localities would remain in effect to reduce or limit impacts to cultural resources during horse removal. Cultural resource inventory requirements for range developments would also remain in effect.

Impacts from Alternative E: Under this alternative all wild horse impacts would be totally eliminated from within the Oil Springs Mountain WSA. However, the increase of AML numbers from the current numbers and maintenance of a permanent herd within the herd area represents an increase in potential impacts to cultural resources from horses, similar to those described for Alternative A. Under Alternative E, there

would be the potential to adversely impact significantly more sites that meet the criteria for eligibility for nomination to the National Register of Historic Places (NHRP), particularly in the north and west portions of the herd area as horses migrate there. Reduced livestock grazing would reduce potential for related impacts. Additional stipulations on new oil and gas leases would reduce impacts to cultural resources from energy development within the stipulated areas. Stipulations limiting road densities would also have the potential to reduce vandalism to cultural resources from illegal artifact collection and excavation by reducing site visibility and accessibility. Current stipulations regarding inventory for cultural resources at trap localities would remain in effect to reduce or limit impacts to cultural resources during horse removal. Cultural resource inventory requirements for range developments would remain in effect.

Impacts from Alternative F: The AML is the same as for Alternative E. However, the herd would be concentrated in approximately half the area identified in Alternative E (Figure 2-1). This would result in a potentially higher concentration of animals per acre in the southern portion of the herd area which subjects the cultural resources in that portion of the herd area to greater potential impacts from horse concentrations. In the northern portion of the herd area where horses would be excluded, under this alternative, impacts from horses would be eliminated while impacts from energy development and livestock grazing would remain unchanged from the current situation. Impacts from horses would also be eliminated from the western portion of the Oil Springs Mountain WSA and portions of the Missouri Creek drainage. Impacts from livestock within the Preferred Habitat Area would be limited to those areas where incidental grazing or trailing through the preferred habitat area is permitted. Impacts to cultural resources are the same as those previously described that involve animal concentrations around water and in areas of thermal cover and include impacts such as trampling and rubbing/scratching on built cultural features such as wickiups or cabins. Additional stipulations on new oil and gas leases would reduce impacts to cultural resources from energy development. Stipulations limiting road densities would also have the potential to reduce vandalism to cultural resources from illegal artifact collection and excavation by reducing site visibility and accessibility. Current stipulations regarding inventory for cultural resources at trap localities would remain in effect to reduce or limit impacts to cultural resources during horse removal. Cultural resource inventory requirements for range developments would remain in effect.

Impacts from Alternative G: Under this alternative all livestock impacts within the herd area would be totally eliminated. Because the proposed wild horse AML is two to four times the current population, impacts to cultural resources due to horses would increase dramatically from present. Conversely, impacts from wild horses outside the fenced herd area would effectively cease under this alternative. Trampling of resources where horses trail and congregate around water and thermal cover would be the principle non-development related impact to cultural resources. Impacts to cultural resources would be the same as those previously described, and involve animal concentrations around water and in areas of thermal cover and include impacts such as trampling and rubbing/scratching on built cultural features such as wickiups or cabins. It is expected that large numbers of potentially National Register of Historic Places (NRHP)-eligible sites would be impacted due to the strong correlation between site location and presence of water and the location of pinyon-juniper forests where it is expected that horses will congregate for water and thermal cover. The potential need to trap up to 330 horses during the four year gather cycle would mean an increased risk of trampling impacts to cultural resources due to trap positioning and helicopter driving of horses to the trap site. Additional stipulations on new oil and gas leases would reduce impacts to cultural resources from energy development within the stipulated areas. Stipulations limiting road densities would also have the potential to reduce vandalism to cultural resources from illegal artifact collection and excavation by reducing site visibility and accessibility. Current stipulations regarding inventory for cultural resources at trap localities would remain in effect to reduce or limit impacts to cultural resources during horse removal. Cultural resource inventory requirements for range developments would remain in effect.

Mitigation Measures:

Alternatives A and B: Under these alternatives all mitigation measures outlined in the White River ROD/RMP would remain in place. No new mitigation measures need to be considered.

Alternatives C, E, F and G: In each of these alternatives new stipulations for those areas where horses will be retained are needed. A monitoring program for all known eligible, listed or need data sites will be

needed to determine what impacts, if any, are occurring to the sites due to the presence of horses. Sites for which no formal register eligibility status has been determined will need to be reevaluated and their eligibility determined in accordance with appropriate regulations. Sites that are listed on the NRHP, eligible for nomination to the NRHP, or in the need data category that are being impacted will require physical protection measures such as fencing or data recovery excavations. Due to the size of the area, the program will need to include evaluation for impacts to cultural resources of either a fixed number of sites or a set number of acres per year.

4.18 Paleontology:

Impacts from Alternative A: Impacts from wild horses would be similar to those from livestock grazing, and include trampling on horizontal or near horizontal surfaces where animals trail or concentrate, where fossil bearing outcrops occur. On vertical faces of critical outcrops there is a potential impact from rubbing and scratching. However, At the present time the nature and extent of impacts from livestock grazing and wild horse activity are not well documented for the herd area. All impacts to paleontological resources from wild horses would cease after the effective removal of all horses from the herd area. Impacts from livestock would continue. Construction and earth disturbing activities associated with oil and gas development can also damage fossils, and this would continue under this alternative. All current stipulations for paleontology from the current RMP would remain in place.

Impacts from Alternative B: Impacts would be the same as described under Alternative A.

Impacts from Alternative C: Reducing horse numbers from the present 60 -151 to the proposed 29-60 and confining the herd to the area of preferred habitat around Texas Mountain impacts three formations, the Mesa Verde, Wasatch and lower Green River. The Lower Green River, sometimes referred to as the Garden Gulch/Douglas Creek member is presently a Category II formation and its fossil potential in the White River Resource Area has not been fully determined. Therefore impacts for fossil resources in this formation can not be estimated. The Wasatch and Mesa Verde formations are classified by the BLM as Category I formations meaning they are known producers of scientifically important fossil resources, especially small fossils and micro fossils. In those areas where the horses concentrate, particularly on horizontal and gently sloped areas of outcrop, the trampling of fossils by wild horses would continue to be severe with impacts increasing as the herd numbers increase and decreasing as the herd numbers decrease. Impacts from wild horses would be most severe on those outcrops where animals concentrate such as around water and in areas of thermal cover i.e. shady places to escape the heat of the summer days. Stipulations on new oil and gas leases could be helpful in reducing development-related impacts to fossils in the Wasatch and Mesa Verde formations. All current stipulations for paleontology from the current RMP would remain in place.

Impacts from Alternative E: Excluding horses from the Oil Spring Mountain WSA mostly affects portions of two formations, the Garden Gulch/Douglas Creek and the Wasatch. While the Garden Gulch/Douglas Creek formation is of unknown fossil bearing potential the Wasatch is known to produce scientifically important fossils and is classified as a Category I formation. Portions of the Mesa Verde in the northwest portion of the WSA would also be excluded from wild horse trampling impacts although the percentage of the Mesa Verde that would be protected is relatively small compared to the overall extent of the Mesa Verde Formation in the herd area. The Mesa Verde and Wasatch formations in the remainder of the herd area will continue to be susceptible to trampling impacts and more impacts than under the current situation due to the higher proposed herd numbers (100-207 versus 60-151). Increasing horse utilization of the northern most portion of the herd area, over the current situation, would increase the potential for trampling and destruction of smaller fossils in the area. Impacts from horse trampling throughout the remaining herd area would be especially severe in those areas where horizontal or gently sloping outcrops coincide with trails or other areas or horse concentration. Constructing new range improvements, especially water sources increases the potential for impacting scientifically important fossil resources, especially in the area immediately surrounding the water, where animals may tend to congregate. Stipulations on new oil and gas leases that include NSO, CSU and well spacing limitations as well as road density limitations could be

helpful in reducing development related impacts to fossils in the Wasatch and Mesa Verde formations. All current stipulations for paleontology from the current RMP would remain in place.

Impacts from Alternative F: Building a boundary fence along the ridge between Lower Horse and Little Indian draws, up to Red Wash, eventually tying into the Park pasture fence would serve to eliminate any wild horse related impacts to fossils of the Mesa Verde Formation in the northern most portion of the herd area. Impacts from livestock grazing and other development would remain unchanged from those identified in the 1997 RMP north of the proposed fence. Increasing the herd numbers from the current 60-151 to 100-207 and concentrating them in roughly half the acreage of the current herd area would increase the number of animals per acre and would result in an increased impact to exposed outcrops of the Mesa Verde and Wasatch formations. Fencing the WSA as in Alternative E above would protect small portions of the three formations within the WSA, as outlined in the discussions for Alternative E, from horse related impacts. The elimination of livestock from the new herd area boundaries in this alternative, except for incidental use and trailing, would not totally eliminate domestic livestock impacts to the resource but would restrict those impacts to those areas where trailing and incidental grazing occur. Impacts to any fossil resources that are present in those areas used for livestock trailing could be extremely destructive, especially on the smaller fossil species present in the Wasatch and Mesa Verde Formations. The Garden Gulch/Douglas Creek formation would also see increased impacts from trampling which could affect fossil resources should any be present. Horizontal and gently sloping surfaces where rock outcrops are exposed would be areas of highest potential impacts to fossil resources, especially where those outcrops of the Wasatch and Mesa Verde formations, coincide with areas that animals prefer to trail, water sources and areas of thermal cover where animals may be expected to congregate and concentrate. Stipulations on new oil and gas leases could be helpful in reducing development related impacts to fossils in the Wasatch and Mesa Verde formations. All current stipulations for paleontology from the current RMP would remain in place.

Impacts from Alternative G: Under this alternative all impacts to fossil resources from domestic livestock grazing would be eliminated. All impacts to fossil resources from wild horse outside the herd area would be eliminated. Fencing the WSA as in Alternative E above would protect small portions of the three formations within the WSA as outlined in the discussions for Alternative E from horse related impacts however, the proportion of the formations protected compared to those subject to impacts from wild horsed in the rest of the herd area is so small as to be insignificant. Stipulations on new oil and gas leases that include NSO, CSU and well spacing limitations as well as road density limitations could be helpful in reducing development related impacts to fossils in the Wasatch and Mesa Verde formations. All current stipulations for paleontology from the RMP would remain in place.

Mitigation Measures: Current stipulations for reviewing and/or inventorying individual ground disturbing activities in the entire West Douglas Herd Area would continue as specified in the 1997 White River ROD/RMP for all alternatives. Under alternatives E, F and G the proposed fence lines would be inventoried for fossil resources and mitigations such as rerouting the fence to avoid sensitive fossil locations would be required. Study plots should be established on selected fossil localities within the herd area and a study conducted to better quantify the nature and extent of impacts from wild horse activities in the herd areas under Alternatives C, D, E, F and G. The extent of the study shall be commensurate with the extent of wild horse occupation within each alternative and be proportional to the acreages of the various fossil bearing formations within the herd areas for the alternative. When ever possible, range enhancements for livestock or horses should be designed to direct animals away from scientifically important fossil localities to prevent trampling impacts to the fossils as a result of animal concentrating/congregating. Gather techniques that involve concentrating animals in small areas will need to be reviewed and/or inventoried to ensure significant fossil localities are not selected as gather sites or concentration areas.

4.19 Access and Transportation:

Impacts from Alternative A: There would be no impacts to access or transportation from this alternative.

Impacts from Alternative B: There would be no impacts to access or transportation from this alternative.

Impacts from Alternative C: Under Alternative C, there would be controlled surface use (CSU) stipulations that would limit road densities within the preferred wild horse habitat. CSU-9, which limits road density to 1.5 miles per square mile, would apply to 11,501 acres of key horse habitat in the southern portion of the herd area. CSU-10, which limits road density to three miles per square mile, would apply to 24,511 acres of preferred habitat, also located in the southern portion of the herd area. However, 1, 537 acres of key, and 3,753 acres of preferred habitat are within the Oil Springs Mountain Wilderness Study Area (WSA). Since no motorized travel or road development is authorized in the WSA, this means that CSU-9 and CSU-10 apply to only 9,964 and 20,758 acres respectively, unless Congress releases the WSA for multiple use management. Alternative C also requires that conditions of approval would be applied to future development that is not subject to the new stipulations, to attempt to achieve the conditions (i.e. restricting road densities) necessary to maintain the key and preferred habitat. Currently, the road density in the key and preferred habitat areas is only about 1.3 miles per square mile. Thus, neither the stipulations nor the conditions of approval will actually impact current access or transportation. Alternative C also calls for travel management planning and potential road closures for the key and preferred habitat. However, due to the current low road density in the areas of concern, road closures will likely be minimal, if necessary at all. The travel management planning and density limitation will apply only to future development.

Impacts from Alternative E: Impacts to access and transportation from Alternative E would include those identified for Alternative C, above. Exclusion of the WSA would make no difference since no motorized travel or road development is allowed there. There would be additional area affected by CSU-10 (38,510 additional acres of preferred habitat in the northern portion of the herd area). Alternative E also calls for another stipulation, CSU-11, which limits road density to three miles per square mile on the 8,937 acre migration corridor that links the northern and southern preferred habitat. As in Alternative C, BLM would attempt to achieve the conditions necessary to create and maintain the preferred habitat and migration corridor by applying conditions of approval to future development in these areas. The current road density in the northern preferred habitat is only about 3.2 miles per square mile. Thus, stipulations and conditions of approval, aimed at reduction of the density to three miles per square mile, would have only a minimal affect on access and transportation. However, the road density in the migration corridor is approximately 4.8 miles per square mile. This is the result of the high density of oil and gas in the central portion of the herd area. Application of CSU-11 and conditions of approval in the near future would not likely reduce the road density to the desired level in the corridor. Thus, as called for in the Alternative description, travel management planning and road closures will be necessary. The travel management plan would likely include changing the travel designation within the corridor from its current designation of open with seasonal restrictions, to designated roads and trails. This change of designation would require an amendment to the RMP.

Impacts from Alternative F: Impacts to access and transportation would be identical to those described above for Alternative C.

Impacts from Alternative G: Impacts to access and transportation from CSU-9 and CSU-10 would be identical to those described above for Alternative E. However, there would be no migration corridor, and thus no CSU-3. Therefore, no travel management planning, road closures, or RMP amendment would be necessary to achieve the stipulated road densities for the migration corridor.

4.20 Forest Management:

Impacts from Alternative A & B: Forest and woodland harvest limits would be as described in the White River ROD/RMP. Implementing a woodland harvest program as described in the ROD/RMP would allow approximately 7 acres to be clearcut and 23 acres to be selectively cut per year. This would require a minimum of one harvest contract per year. Each sale is expected to last two to three years. Removal of 7 acres by clearcut and 23 acres by selective cut is expected to increase forage species until pinyon/juniper dominates the site. On these sites pinyon and juniper are expected to dominate the sites in 15 to 20 years

as a result of the seedlings and saplings remaining after harvest. The increase in forage is estimated at 2 AUMs per year, or 30 AUMs over a 15 year period.

Impacts from Alternative C: Forest and woodland harvest limits would be as described in the White River ROD/RMP. Implementing a woodland harvest program would be as described under alternatives A and B. The majority of the herd area would not have horses, and horses would not be impacted by harvest activities. Implementation of CSU-1 would prevent commercial harvest on the majority of the Texas Mountain Area. On any sales that are conducted within areas occupied by horses, there is expected to be short term displacement of horses during actual harvest activities. Removal of 7 acres by clearcut and 23 acres by selective cut is expected to increase forage species until pinyon/juniper dominates the site. Personal harvest of firewood in the Herd Area is expected to continue to focus on trees removed as a result of oil and gas development. Wood cutting on well pads and access roads increases the physical disturbance to horses. Personal use is generally a very dispersed activity and impacts to horses would be insignificant. CSU-1 would remove approximately 800 acres of suitable pinyon/juniper from harvest. Gating of access roads in critical horse habitat to prevent unofficial use would significantly decrease this disturbance.

Impacts from Alternative E: Same as C within the Texas Mountain area. As horses distribute throughout the Herd Area there is expected to be short term displacement of horses during actual harvest activities. CSU stipulations would prevent commercial forest harvest activities within the Texas Mountain area and habitat corridor.

Impacts from Alternative F: Same as C.

Impacts from Alternative G: Same as E with the exception that horse numbers will be significantly higher and the opportunity for short term displacement during harvesting activities will be greater.

Mitigation Measures: Mitigation measures/stipulations would be determined through a site specific Environmental Assessment for any forest or woodland projects.

4.21 Socio-Economics:

Impacts from Alternative A: Projected Trends in population, employment and income for Rio Blanco County would be as described in the Affected Environment Section.

BLM Administrative Costs: Under Alternative A, approximately 120 wild horses would be gathered and removed from West Douglas by the year 2007. Assuming that any one gather can only remove 80 percent of the horses it will be necessary to have at least 3 gathers in order to remove all or virtually all of the horses. BLM created a predictive model for the costs associated with managing horses in the West Douglas Herd Area, using mean costs described in the Affected Environment. Using this model the cost for eliminating the West Douglas herd in both alternative A and B was estimated to have direct costs of $499,000. These expenditures would be made between 2005 and 2007 and amount to annual direct costs of $166,000. If costs are spread over 20 years for the purpose of comparison with the other alternatives, annual direct costs are equal to $25,000.

No other significant economic changes are expected as a result of adopting this alternative, including: 1) no significant change in the number of AUMs grazed by permittees, currently valued at $12984 with an estimated market value of $90,800; 2) No significant change in hunting or recreation use is expected; 3) no significant change is projected in oil and gas revenues or royalties associated with them.

Impacts from Alternative B:

Alternative B, from a social and economic perspective is almost identical to Alternative A with the notable exception that the number of AUMs allocated to cattle is reduced for purposes of sustainable range health. Under Alternative B, the value of forage allocated to cattle is $9,930. The estimated market value of this

forage is $69,670. No changes are expected in terms of population or employment. West Douglas permittees may expect a decrease in income equal to the change in forage allocation affecting their operations.

Impacts from Alternative C:

Alternative C causes no significant changes in population, employment, or income. There is a potential job loss of one employee in the ranching sector as reduced forage allocation reduces permittee income. Forage allocation to cattle is reduced to a value of $9,007 with a market value estimated at $62990.

The administrative cost of maintaining the small West Douglas herd under Alternative C is estimated as direct costs of $806,000. Over a 20 year planning horizon this alternative produces estimated annual direct costs of $40,300.

Impacts from Alternative E:

Alternative E causes no significant changes in Rio Blanco population, employment, or income. Under this alternative, there is the potential job loss of one employee in the ranching sector caused by reduced income due to reduced allocation of forage to cattle. With the reduction the value of forage allocated to cattle is $6,738 with an estimated market value of $43,250.

The single job loss in the ranching sector is made up for to some limited degree by an increase of 2 temporary and one seasonal job caused by building and maintenance of fence and ponds. Construction of 9.4 miles of fence is estimated to cost $94,000 with an annual maintenance cost of $1,800. Additional annual costs of maintaining ponds are estimated at $2000

The total administrative cost of maintaining the minimal West Douglas herd under Alternative E is estimated as direct costs of $1,215,000. If fencing and fence and pond maintenance costs are added to this, over a 20 year planning horizon, this alternative produces estimated annual direct costs of $69,250.

Impacts from Alternative F:

Alternative F causes no significant changes in Rio Blanco population, employment, or income. Under this alternative, there is the potential job loss of one employee in the ranching sector caused by reduced income due to reduced allocation of forage to cattle. With the reduction the value of forage allocated to cattle is $6,738 with an estimated market value of $43,250.

The single job loss in the ranching sector is made up for by an increase of 7.5 temporary and one seasonal job caused by building and maintenance of fence and ponds. Construction of 32 miles of fence is estimated to cost $320,000 with an annual maintenance cost of $6,400. Additional annual costs of maintaining ponds and springs are estimated at $600

The total administrative cost of maintaining the minimal West Douglas herd under Alternative E is estimated as direct costs of $1,215,000. If fencing and pond and spring maintenance costs are added to this, over a 20 year planning horizon, this alternative produces estimated annual direct costs of $83,750.

Impacts from Alternative G:

Alternative G causes no significant changes in Rio Blanco population, employment, or income. Under this alternative, there is the potential job loss of three employees in the ranching sector caused by reduced income due to the reduction to zero of forage to cattle.

The job loss in the ranching sector is to some degree made up for by an increase of 7.5 temporary and 2 seasonal jobs caused by building and maintenance of fence and ponds. Construction of 32 miles of fence is estimated to cost $320,000 with an annual maintenance cost of $12,200 for 61 miles of fence. Additional

annual costs of maintaining ponds and springs are estimated at $1600. Three Wells will require rebuilding at the cost of $10,000 per well and annual maintenance costs of $400.

The total administrative cost of maintaining the minimal West Douglas herd under Alternative G is estimated as direct costs of $2,062,000. If fencing and, pond, spring and well maintenance costs are added to this, over a 20 year planning horizon, this alternative produces estimated annual direct costs of $135,850.

4.22 Cumulative Impacts: Cumulative impacts from each alternative are addressed by resource in the above paragraphs of this section, at various geographic scales. Cumulative impacts include grazing (wildlife, wild horse, and livestock) effects on vegetation, riparian areas, water, and soils at the affected riparian site, pasture, watershed, and herd area scale. Cumulative impacts to wildlife (e.g. oil and gas development and grazing) are addressed at the habitat, herd area, and regional geographic scales. Resource paragraphs also discuss impacts from oil and gas, and associated infrastructure (roads, pipelines, etc.) within key and preferred wild horse habitat, as well as for the entire herd area. The Socio-economic section addresses economic impacts at the county level, and (for the BLM wild horse fiscal program) at the state level. Refer to the appropriate resource section for a detailed discussion on cumulative impacts pertinent to a specific resource.