

4.0 CUMULATIVE EFFECTS

4.1 Cumulative Effects Overview

The purpose of the cumulative impacts analysis for the Proposed Action is to evaluate the combined, incremental effects of human activity within the scope of the project. The CEQ regulations define scope to include connected actions, cumulative actions, and similar actions (40 CFR 1508.25). The CEQ formally defines cumulative impacts as follows: "...the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7)".

The Cumulative Effects Study Area (CESA) for evaluating the Proposed and Alternative actions for this EA is the Cow Canyon, Clan Alpine, and Dixie Valley Grazing Allotments, including the Clan Alpine HMA. The project area consists of approximately 790,187 acres. Since the effects of the Proposed Action are expected to last ten years, this time frame is considered to be most appropriate for considering the incremental effect of Reasonably Foreseeable Future Actions (RFFA). The reasonable scope of the cumulative analysis would be restricted to connected, cumulative, and similar actions to the Proposed Action within the project area.

4.2 Past, Present, and Reasonably Foreseeable Future Actions

Past actions considered are those whose impacts to one or more of the affected resources have persisted to present day. Present actions are those occurring at the time of this evaluation and during implementation of the Proposed Action. RFFAs constitute those actions that are known or could reasonably be anticipated to occur within the analysis area for each resource, within a time frame appropriate to the expected impacts from the Proposed Action. For the Proposed Action, the time frame for potential future actions is reasonably assumed to be for at least the duration of the 10-year term grazing permit. Although new terms and conditions may be proposed, it is likely that the grazing permit would continue to be renewed beyond this 10-year period.

Past and current land use activities in the CESA include authorized geothermal energy leases, gravel pits, wild horse gathers, off highway vehicle races, dispersed recreation, mining activity, livestock grazing, and various range improvements such as spring developments, storage tanks, troughs, fences, corrals, and cattle guards.

The primary past, present, and RFFA that would contribute to cumulative impacts of the Proposed Action include continued use of existing unpaved roads, continued exploration and development of geothermal resources, continued use of existing right-of-way authorizations, livestock grazing and ranching, wild horse gathers, off highway vehicle races, dispersed recreation, and mining activity.

Over the next 10 – 20 year period, RFFAs could include wild horse gathers about every 2 - 4 years to revaccinate the mares and/or remove any excess wild horses in order to manage population size within the established AML range.

Table 61: Past, Present and Reasonably Foreseeable future actions applicable to the cumulative analysis area specifically related to wild horses.

Project Name or Description	Status (x)		
	Past	Present	Future
Issuance of multiple use decisions and grazing permits for ranching operations through the allotment evaluation process and the reassessment of the associated allotments.	X	X	X
Livestock grazing.	X	X	X
Wild horse gathers.	X	X	X
Invasive weed inventory/treatments.	X	X	X
Wild horse’s management including the issuance of multiple use decisions, AML adjustments and planning.	X		X
Geothermal Exploration and Development Activities	X	X	X
ROW Authorizations	X	X	X
OHV Races	X	X	X
Mining Exploration and Development	X	X	X
Sand and Gravel Operations	X	X	X
Range Improvement Projects	X	X	X

4.3 Cumulative Impacts on Livestock Grazing

4.3.1 Alternative 1: Proposed Action

Implementation of the Proposed Action would ensure that grazing allotments not meeting the Standards for Rangeland Health and/or Table 2-2 Habitat Standards would make significant progress toward achieving those standards and areas currently meeting or making significant progress towards meeting those standards would continue to do so based on present livestock management. Long-term stability of the livestock industry would be supported through the authorized use of public lands. Allotment monitoring and evaluation would ensure that if resource conditions change on allotments, appropriate management actions would be taken to ensure standards are met or making significant progress toward being met.

The Proposed Action in many cases would allow a larger percentage of desirable, native vegetation to complete annual growth and set seed which would allow for an increase in reproduction and result in improved upland health. Protection of riparian areas would allow for recovery of the springs and surrounding vegetation and regular maintenance of existing range improvements would further reduce impacts on the allotments.

Reducing the existing noxious weed infestations within riparian areas would minimize streambank alteration and allow for the recovery of streambank stabilizing herbaceous

species. Upland habitats would also benefit from reduced amounts of noxious weeds through increased productivity, diversity and reduced amounts of bare ground.

All facets of the plant communities in the Project Area are affected by climate, wildlife, and direct disturbance through the presence of roads and other physical facilities both within and adjacent to the allotment. Past grazing practices and recreation use have and would continue to affect the vegetation within the allotment. When added to the existing activities in and adjacent to the Project Area, approval of this alternative would not cause undue damage to upland vegetation in relation to past, present and RFFA's in the general area.

4.3.2 Alternative 2: Dixie Valley Reduction in Livestock and Change in Season of Use

Cumulative effects under this alternative would be similar to the Proposed Action. The closing of the Dixie Valley North Pasture would allow for the vegetation and riparian areas to recover earlier due to the relief of livestock grazing pressure on these environments.

4.3.3 Alternative 3: Cherry Valley Closure to Hot Season Grazing

Cumulative effects under this alternative would be similar to the Proposed Action. The closure of Cherry Valley to hot season grazing would allow riparian vegetation to complete its growth cycle and reduce pressure on waterways and surrounding areas where livestock tend to congregate during the summer season.

4.3.4 Alternative 4: Cow Canyon Change in Season of Use and Clan Alpine Reduction of AUMs

Cow Canyon and Clan Alpine

Cumulative effects under this alternative would be similar to the Proposed Action. The change in grazing season on the Cow Canyon Allotment and the lower stocking rate and flexibility in grazing use on the Clan Alpine Allotment would relieve some of the grazing pressure on the vegetation thus increasing the likelihood for meeting or making significant progress towards meeting Rangeland Health And/or Table 2-2 Habitat Standards. All facets of the plant communities and waterways on the allotments are affected by climate, wildlife, and direct disturbance through the presence of roads and other physical facilities both within and adjacent to the allotment. Past grazing practices and recreation use have and would continue to affect the vegetation and waters within both allotments. When added to the existing activities in and adjacent to the Cow Canyon and Clan Alpine Allotments, implementation of this alternative would not cause undue damage to the waterways or upland vegetation in relation to past, present and foreseeable future land uses in the general area.

Dixie Valley

Cumulative effects under this alternative for the Dixie Valley Allotment would be similar to the Proposed Action.

4.3.5 Alternative 5: No Domestic Sheep Grazing

Cumulative effects under this alternative would be similar to the Proposed Action. The elimination of domestic sheep grazing would reduce the possibility of repeated grazing pressure on the native perennials by both cattle and domestic sheep in the New Pass Mountains of the Clan Alpine Allotment.

4.3.6 Alternative 6: No Grazing

Under the No Grazing Alternative, no livestock would be authorized in the Cow Canyon, Clan Alpine, and Dixie Valley Allotments. Not renewing the term livestock grazing permits would likely result in economic harm to the permittees as livestock grazing on the Allotments would no longer contribute to the regional economy and larger society.

4.3.7 Alternative 7: No Action

Selection of Alternative 7, No Action or continuation of current management, would authorize livestock grazing in some areas that are not meeting standards. Alternative 7 could result in cumulative degradation to watersheds, especially where similar conditions exist on adjoining lands as no changes to the management would occur.

Upland sites not meeting Standards for Rangeland Health and/or Table 2-2 Habitat Standards as a result of current livestock grazing would continue to decline in productivity and upland health. Annual grasses and non-native grasses along with noxious weeds could increase, especially during times of drought. Riparian sites not meeting standards due to current livestock management would remain static or continue in a downward trend. Riparian plant community succession and streambank stabilization would be interrupted or impeded leading to degradation and potential loss of functioning riparian areas.

The present level of weed control could lead to an increase in noxious weeds in the planning area. Browse, forbs and grass availability for wildlife would continue to decline on allotments not meeting rangeland health and/or Table 2-2 Habitat Standards. Over time, the reduction in wildlife forage and increased levels of noxious weeds would cause a cumulative loss in the wildlife value of these areas. Public lands in the planning area that are not in proper functioning condition would continue to contribute pollutants such as sediment, nitrates, fecal coliform and warmer water to streams.

4.4 Cumulative Impacts on Wild Horses

4.4.1 Alternative 1: Proposed Action

When combined with the effects from past, present, and RFFAs, cumulative effects associated with bait/water trapping of wild horses, are considered minor. Some injuries could be sustained by wild horses when captured as the animals still need to be sorted, aged, possibly transported, and otherwise handled following their capture. These injuries result from kicks and bites, or from collisions with corral panels or gates. The application of fertility control vaccines to released mares include gather-related mortality of less than 1% of the captured animals, about 5% per year associated with transportation, short term holding, adoption, or sale with limitations and about 8% per year associated with long-term holding. This compares

with natural mortality on the range ranging from about 5-8% per year for foals (animals under age 1), about 5% per year for horses ages 1-15, and 5-100% for animals age 16 and older (Jenkins 2002, Garrott and Taylor 1990). In situations where forage and/or water are limited, mortality rates increase, with the greatest impact to young foals, nursing mares and older horses. Animals can experience lameness associated with trailing to/from water and forage, foals may be orphaned (left behind) if they cannot keep up with their mare, or animals may become too weak to travel. After suffering, often for an extended period, the animals may die. Before these conditions arise, the BLM generally removes the excess animals to prevent their suffering from dehydration or starvation.

While humane euthanasia and sale without limitation of healthy horses for which there is no adoption demand is authorized under the WFRHBA, Congress prohibited the use of appropriated funds between 1987 and 2004, 2010 through 2012 and again in 2013 through 2015 for this purpose.

Additional cumulative impacts from implementation of the Proposed Action that could be expected include improvement of upland vegetation conditions, which would in turn benefit permitted livestock, native wildlife, and the wild horse population as forage (habitat) quality and quantity should improve over the current level. Application of fertility control should slow population growth rates and result in fewer excess wild horses that would need to be removed in the foreseeable future.

Cumulatively, there should be more stable wild horse populations, less competition for limited forage and water resources, healthier rangelands and wild horses, and fewer multiple use conflicts in the area over the short and long-term. Over the next 10-20 years, continuing to manage wild horses within the established AML range would achieve/maintain the thriving natural ecological balance and multiple use relationships on public lands in the CESA.

4.4.2 Alternative 2: Dixie Valley Reduction in Livestock and Change in Season of Use

Under this alternative effects to wild horses are expected to be similar to the Proposed Action.

4.4.3 Alternative 3: Cherry Valley Closure to Hot Season Grazing

Under this alternative effects to wild horses are expected to be similar to the Proposed Action.

4.4.4 Alternative 4: Cow Canyon Change in Season of Use and Clan Alpine Reduction of AUMs

Under this alternative effects to wild horses are expected to be similar to the Proposed Action.

4.4.5 Alternative 5: No Domestic Sheep Grazing

Under this alternative the Clan Alpine HMA wild horses would not be affected.

4.4.6 Alternative 6: No Grazing

When combined with the effects from past, present, and reasonably foreseeable future actions, cumulative effects associated with the capture and removal of excess wild horses, are

considered minor. Cumulative impacts expected would include continued improvement of upland vegetation conditions, which would in turn benefit native wildlife, and wild horse populations as forage (habitat) quality and quantity is improved over the current level. Application of fertility control should slow population growth rates and result in fewer excess wild horses that need to be removed. The return of wild horses back into the HMA could lead to increased difficulty and greater costs to gather horses in the future as released horses learn to evade the trap site and/or helicopter. However, if the horses are able to be bait/water trapped, they may become habituated to the corrals with the possibility of multiple captures of the same individual horses over time.

Cumulatively, there should be more stable wild horse populations, less competition for limited forage and water resources, healthier rangelands and wild horses, and fewer multiple use conflicts in the area over the short- and long-term. Over the next 10-20 years, continuing to manage wild horses within the established AML range would achieve/maintain the thriving natural ecological balance and multiple use relationship on public lands in the area.

4.4.7 Alternative 7: No Action

Under the No Action Alternative, the wild horse population could exceed 1,000 horses in and outside of the Clan Alpine HMA in the next ten years. Movement outside of the HMA would be expected as greater numbers of horses search for sufficient food and water. Heavy to severe utilization of the available forage would be expected and the water available for use could become increasingly limited. Emergency removals could be expected in order to prevent individual animals from suffering or death as a result of insufficient forage and water. Cumulative effects would result in foregoing the opportunity to improve rangeland health and to properly manage wild horses in balance with the available forage and water and other multiple uses. Attainment of site-specific vegetation management objectives and Standards for Rangeland Health and/or Table 2-2 Habitat Standards would not be achieved. AML would not be achieved and the opportunity to collect the scientific data necessary to re-evaluate AML levels, in relationship to the standards, would be foregone.

4.5 Cumulative Impacts on Minerals

4.5.1 Alternative 1: Proposed Action

Impacts from Proposed Action would be negligible except for the proposed community pit action. This action and RFFAs are expected to be short term and minimal to all resources analyzed (air quality, noxious weeds, invasive and non-native species, geology and minerals, soils, vegetation, range resources, visual resources, recreation and lands and realty) since the community pit disturbance would be reclaimed once sand and gravel resources have been exhausted.

4.5.2 Alternative 2: Dixie Valley Reduction in Livestock and Change in Season of Use

The effects of this Alternative would be similar to those under the Proposed Action.

4.5.3 Alternative 3: Cherry Valley Closure to Hot Season Grazing

Cumulative effects under this alternative would be similar to the Proposed Action.

4.5.4 Alternative 4: Cow Canyon Change in Season of Use and Clan Alpine Reduction of AUMs

Under this alternative effects to minerals are expected to be similar to the Proposed Action.

4.5.5 Alternative 5: No Domestic Sheep Grazing

The effects of this Alternative would be similar to those under the Proposed Action.

4.5.6 Alternative 6: No Grazing

The effects of this Alternative would be similar to those under the Proposed Action.

4.5.7 Alternative 7: No Action

Under the No Action Alternative, there would be no new impacts on minerals. The proposed Edwards Creek Community Gravel Pit would remain as two separate gravel pits. Material sales would continue in the area. The Proposed Action would not significantly contribute to cumulative impacts to wildlife, migratory birds, or special status species.

4.6 Cumulative Impacts on Water Quality

4.6.1 Alternative 1: Proposed Action

Cow Canyon

Flexibility during the gathering period, paired with maintenance to existing, and construction of new range improvements, in combination with past, present and RFFAs would continue meeting the RAC Standards for Water Quality and the narrative standards as per NAC 445A.121. With maintenance of existing range improvements, water quality is expected to remain at standard levels or improve.

Clan Alpine

When combined with the effects from past, present, and RFFAs, the Proposed Action would continue meeting the RAC Standards for Water Quality and NAC 445A.121 narrative standards.

Dixie Valley

When combined with the effects from past, present, and RFFAs, the Proposed Action would make progress towards meeting the RAC Standards for Water Quality and NAC 445A.121 narrative standards.

4.6.2 Alternative 2: Dixie Valley Reduction in Livestock and Change in Season of Use

Cow Canyon

Alternative 2 is not applicable to the Cow canyon Allotment.

Clan Alpine

Alternative 2 is not applicable to the Clan Alpine Allotment.

Dixie Valley

Under Alternative 2 when combined with the effects from past, present and RFFAs, reducing livestock numbers and adjusting the season of use would improve water quality and make progress towards meeting the RAC Standards for Water Quality and NAC 445A.121 narrative standards.

4.6.3 Alternative 3: Cherry Valley Closure to Hot Season Grazing

Cow Canyon

Alternative 3 is not applicable to the Cow canyon Allotment.

Clan Alpine

Alternative 3 when combined with the effects from past, present and RFFAs would continue to meet RAC Standards for Water Quality and NAC 445A.121 narrative standards. Hot season grazing would be omitted thereby reducing livestock grazing pressure on water resources.

Dixie Valley

Alternative 3 is not applicable to the Dixie Valley Allotment.

4.6.4 Alternative 4: Cow Canyon Change in Season of Use and Clan Alpine Reduction of AUMs

Cow Canyon and Clan Alpine

Under Alternative 4 when combined with the effects from past, present and RFFAs, changing the grazing season on the Cow Canyon Allotment and reducing livestock numbers along with the increased grazing flexibility on the Clan Alpine Allotment would improve water quality and assist in making progress towards meeting the RAC Standards for Water Quality and NAC 445A.121 narrative standards.

Dixie Valley

Cumulative impacts to water quality under this alternative would be similar to those described under Alternative 1.

4.6.5 Alternative 5: No Domestic Sheep Grazing

Cow Canyon

Alternative 5 is not applicable to the Cow canyon Allotment.

Clan Alpine

There would be no cumulative effects on water quality under Alternative 5 because there are no springs or natural waters in the New Pass Area of the Clan Alpine Allotment.

Dixie Valley

Alternative 5 is not applicable to the Dixie Valley Allotment.

4.6.6 *Alternative 6: No Grazing*

Common to all Allotments

Under Alternative 6, waters would be closed to livestock grazing assisting in the restoration of riparian vegetation, thus reducing erosion and sedimentation, and improving water quality over time.

4.6.7 *Alternative 7: No Action*

Common to all Allotments

Under the No Action Alternative, when combined with the effects from past, present, and RFFAs, springs and water quality would likely continue to meet standards. Water quality impacted by range improvements in disrepair would need additional time to recover. Overall, if springs are maintained according to the No Action Alternative, they would continue to meet standards and shift to upward trends because of increased maintenance and protection.

4.7 *Cumulative Impacts on Wetlands and Riparian Zones*

4.7.1 *Alternative 1: Proposed Action*

Common to All Allotments

Under the Proposed Action, when combined with the effects from past, present, and RFFAs, riparian areas/wetlands would shift towards neutral or upward trends. Maintenance to existing range improvements would further reduce the impact of grazing on riparian zones and work towards meeting the RAC and/or Table 2-2 Habitat Standards for Riparian/Wetlands.

4.7.2 *Alternative 2: Dixie Valley Reduction in Livestock and Change in Season of Use*

Cow Canyon

Alternative 2 is not applicable to the Cow Canyon Allotment.

Clan Alpine

Alternative 2 is not applicable to the Clan Alpine Allotment.

Dixie Valley

Under this alternative livestock numbers would be reduced and the season of use changed resulting in less degradation to riparian and wetland areas. This alternative, when combined with the effects from past, present and RFFAs, would allow riparian and wetland areas to make significant progress towards meeting RAC and/or Table 2-2 Habitat Standards.

4.7.3 *Alternative 3: Cherry Valley Closure to Hot Season Grazing*

Cow Canyon

Alternative 3 is not applicable to the Cow Canyon Allotment.

Clan Alpine

Under this alternative, when combined with the effects from past, present, and RFFAs, hot season grazing would be omitted thereby reducing livestock grazing pressure on riparian and wetland zones. This would allow riparian and wetland areas to make significant progress

towards meeting RAC and/or Table 2-2 Habitat Standards.

Dixie Valley

Alternative 3 is not applicable to the Dixie Valley Allotment.

4.7.4 Alternative 4: Cow Canyon Change in Season of Use and Clan Alpine Reduction of AUMs

Cow Canyon and Clan Alpine

Under this alternative changing the grazing season on the Cow Canyon Allotment and reducing livestock numbers along with the increased grazing flexibility on the Clan Alpine Allotment would result in less degradation to riparian and wetland areas. When combined with the effects from past, present and RFFAs, this alternative would allow riparian and wetland areas to make significant progress towards meeting RAC and/or Table 2-2 Habitat Standards.

Dixie Valley

Cumulative impacts to wetlands and riparian zones under this alternative would be similar to those described under Alternative 1.

4.7.5 Alternative 5: No Domestic Sheep Grazing

Cow Canyon

Alternative 5 is not applicable to the Cow Canyon Allotment.

Clan Alpine

There would be no cumulative effects on riparian areas/wetlands under Alternative 5 because there are no springs or natural waters in the New Pass Area of the Clan Alpine Allotment.

Dixie Valley

Alternative 5 is not applicable to the Dixie Valley Allotment.

4.7.6 Alternative 6: No Grazing

Common to all Allotments

Under Alternative 6, grazing closure would allow for the restoration of riparian zones, increasing bank stability, reducing erosion, and increasing groundwater recharge. This would likely improve functionality and make significant progress towards meeting RAC and/or Table 2-2 Habitat Standards.

4.7.7 Alternative 7: No Action

Common to All Allotments

Under the No Action Alternative when combined with the effects from past, present and RFFAs, could include a significant loss of riparian vegetation, increased erosion and sedimentation. Downward trends could potentially escalate, especially for areas not meeting PFC.

4.8 Cumulative Impacts on Vegetation

4.8.1 *Alternative 1: Proposed Action*

Under the Proposed Action, when combined with the effects from past, present, and RFFAs, there would be an overall improvement of the health, vigor, and recruitment of perennial grasses, forbs, and shrub species. Cattle numbers would be reduced on the Cow Canyon and Clan Alpine Allotments and compliance with the rotational grazing schedule on Dixie Valley Allotment would allow for better cattle distribution, wherein less leaf and litter cover would be removed, affecting the vegetation in a positive way. Wild horse numbers would be maintained within AML further continuing to the improvement of vegetative resources.

4.8.2 *Alternative 2: Dixie Valley Reduction in Livestock and Change in Season of Use*

Under this alternative, when combined with the effects from past, present, and RFFAs, effects to the vegetation are expected to be similar to the Proposed Action. The Cow Canyon and Clan Alpine Allotments would not be affected by this alternative.

4.8.3 *Alternative 3: Cherry Valley Closure to Hot Season Grazing*

Under this alternative, when combined with the effects from past, present, and RFFAs, effects to the vegetation are expected to be similar to the Proposed Action. The Cow Canyon and Dixie Valley Allotments would not be affected by this alternative.

4.8.4 *Alternative 4: Cow Canyon Change in Season of Use and Clan Alpine Reduction of AUMs*

Cow Canyon

Under this alternative, when combined with the effects from past, present, and RFFAs, effects to the vegetation are expected to be similar to the Proposed Action. The vegetation communities would be grazed during dormancy and not during the critical growing season. This would allow for increased regeneration of the native plant communities.

Clan Alpine

Under this alternative, when combined with the effects from past, present, and RFFAs, effects to the vegetation are expected to be similar to the Proposed Action. The vegetation communities would receive less utilization as livestock numbers have been reduced. This would allow for increased regeneration of the native plant communities.

Dixie Valley Allotment

Cumulative impacts to vegetation under this alternative would be similar to those described under Alternative 1.

4.8.5 *Alternative 5: No Domestic Sheep Grazing*

Under this alternative, when combined with the effects from past, present, and RFFAs, effects to the vegetation are expected to be similar to the Proposed Action. The vegetation would receive less utilization being allowed to rest after cattle have grazed through the area. This

would allow for increased regeneration of the native plant communities. The Cow Canyon and Dixie Valley Allotments would not be affected by this alternative.

4.8.6 Alternative 6: No Grazing

Under this alternative, when combined with the effects from past, present, and RFFAs, effects to the vegetation are expected to be similar to the Proposed Action. Initially there would be an overall improvement of the health, vigor, and recruitment of perennial grasses, forbs, and shrub species, in part due to no utilization of vegetative resources by livestock, therefore less leaf and litter cover would be removed, affecting the vegetation in a beneficial way. Over time the increased forage base would assist in expanding the wild horse population which could then damage the vegetation as a result of their over use. High utilization levels, whether by livestock or wild horses, are not conducive to the successful recruitment and regrowth of perennial grasses and forbs.

Conversely, areas left ungrazed have a higher probability for severe wildfires. Appropriate levels of grazing by livestock and horses can reduce fuels and result in smaller, less intense wildfires.

4.8.7 Alternative 7: No Action

Under the No Action Alternative, when combined with the effects from past, present, and RFFAs, the reissuance of the grazing permits without modifications to the current license would result in riparian zones beginning and/or continuing in a downward trend and would be detrimental to maintaining and/or sustaining the health of the upland vegetation communities.

4.9 Cumulative Impacts on Invasive, Non-native and Noxious Species

4.9.1 Alternative 1: Proposed Action

Under the Proposed Action, when combined with the effects from past, present, and RFFAs, the amount of cheatgrass plants and seeds could be reduced, and the risk of wildfire would be reduced. There would be a further decrease in cheatgrass within the CESA should TNR be authorized. Any short term and long term effects considered negative from herbicide application would be negligible as the herbicides would be applied per label instructions. The decrease in utilization of vegetative resources by excess wild horses would also enhance plant communities making them more resilient to invasive, non-native and noxious weed species. All of these factors would contribute to making conditions more favorable for the desired native plant species to become established.

4.9.2 Alternative 2: Dixie Valley Reduction in Livestock and Change in Season of Use

Cumulative effects to invasive, non-native, and noxious species are expected to be similar to the Proposed Action.

4.9.3 Alternative 3: Cherry Valley Closure to Hot Season Grazing

Cumulative effects to invasive, non-native, and noxious species are expected to be similar to the Proposed Action.

4.9.4 Alternative 4: Cow Canyon Change in Season of Use and Clan Alpine Reduction of AUMs

Cumulative effects to invasive, non-native, and noxious species are expected to be similar to the Proposed Action.

4.9.5 Alternative 5: No Domestic Sheep Grazing

Cumulative effects to invasive, non-native, and noxious species are expected to be similar to the Proposed Action.

4.9.6 Alternative 6: No Grazing

Under the No Grazing Alternative, when combined with the effects from past, present, and RFFAs, multiple use objectives outlined in the CRMP would not be met. Existing noxious and non-native species populations would remain in the project area. Invasive species populations sensitive to spread via livestock herbivory could be spread by other vectors such as wild horses, wildlife, wildfire and vehicles. Expansion of invasive populations may be slowed without livestock grazing and would not provide for the targeted use of cheatgrass, resulting in dense areas of ungrazed invasive species that would pose a high risk of catastrophic wildfire.

4.9.7 Alternative 7: No Action

Under the No Action Alternative, when combined with the effects from past, present, and RFFAs, livestock grazing and the spread of noxious weeds would continue at existing levels. Noxious weeds would continue to increase and displace native vegetation when not treated. Under the No Action BLM would continue to implement weed treatments at existing levels which would cumulatively benefit native species.

4.10 Cumulative Impacts on Cultural Resources

4.10.1 Alternative 1: Proposed Action

When combined with the effects from past, present and RFFAs, cumulative effects from the Proposed Action would be consistent with current use. Cultural resources would be identified prior to implementation of any Proposed Actions: historic properties would be mitigated using various treatments including exclosures or relocation of a proposed project, and the BLM would follow the State Protocol Agreement between the Bureau of Land Management, Nevada and the Nevada State Historic Preservation Office for Implementing the National Historic Preservation Act.

4.10.2 Alternative 2: Dixie Valley Reduction in Livestock and Change in Season of Use

Cumulative effects under this alternative would be similar to the Proposed Action.

4.10.3 Alternative 3: Cherry Valley Closure to Hot Season Grazing

Cumulative effects under this alternative would be similar to the Proposed Action.

4.10.4 Alternative 4: Cow Canyon Change in Season of Use and Clan Alpine Reduction of AUMs

Cumulative effects under this alternative would be similar to the Proposed Action.

4.10.5 Alternative 5: No Domestic Sheep Grazing

Cumulative effects under this alternative would be similar to the Proposed Action.

4.10.6 Alternative 6: No Grazing

Under the No Grazing Alternative, livestock would not contribute to cumulative impacts to cultural resources within the allotments as no livestock grazing would be permitted.

4.10.7 Alternative 7: No Action

Cumulative effects under this alternative would be similar to the Proposed Action.

4.11 Cumulative Impacts on Native American Religious Concerns

4.11.1 Alternative 1: Proposed Action

When combined with the effects from past, present and RFFAs cumulative effects from the Proposed Action are expected to be negligible to Native American religious concerns. Native American representatives would be consulted prior to implementation of any proposed improvements and values of interest to Native Americans would be protected in accordance with H-8120-1, General Procedural Guidance for Native American Consultation (BLM 2004b).

4.11.2 Alternative 2: Dixie Valley Reduction in Livestock and Change in Season of Use

Cumulative effects under this alternative would be similar to the Proposed Action.

4.11.3 Alternative 3: Cherry Valley Closure to Hot Season Grazing

Cumulative effects under this alternative would be similar to the Proposed Action.

4.11.4 Alternative 4: Cow Canyon Change in Season of Use and Clan Alpine Reduction of AUMs

Cumulative effects under this alternative would be similar to the Proposed Action.

4.11.5 Alternative 5: No Domestic Sheep Grazing

Cumulative effects under this alternative would be similar to the Proposed Action.

4.11.6 Alternative 6: No Grazing

Under the No Grazing Alternative, livestock would not contribute to cumulative impacts to cultural resources within the allotments as no livestock grazing would be permitted.

4.11.7 Alternative 7: No Action

Cumulative effects under this alternative would be similar to the Proposed Action.

4.12 Cumulative Impacts on Wildlife

4.12.1 Alternative 1: Proposed Action

Within the Cow Canyon, Clan Alpine, and Dixie Valley Allotments, some of the past actions, present actions, and RFFAs are having or could have positive impacts on wildlife habitat (e.g. invasive weed treatments, range improvement projects, wild horse gathers, etc...), while other past actions, present actions, and RFFAs are currently having or could have detrimental impacts to wildlife habitat (e.g. OHV races, mining, sand and gravel operations, geothermal activities, etc...). Actions associated with the Proposed Action, such as constructing range improvements and conducting invasive weed treatments, can be expected to increase the quantity and quality of habitat available to wildlife. When combined with all past, present, and RFFAs, the Proposed Action should result in neutral to positive impacts on wildlife habitat.

4.12.2 Alternative 2: Dixie Valley Reduction in Livestock and Change in Season of Use

Cumulative effects under this alternative would be similar to the Proposed Action.

4.12.3 Alternative 3: Cherry Valley Closure to Hot Season Grazing

Cumulative effects under this alternative would be similar to the Proposed Action.

4.12.4 Alternative 4: Cow Canyon Change in Season of Use and Clan Alpine Reduction of AUMs

Cumulative effects under this alternative would be similar to the Proposed Action. Impacts would be reduced due to use when plants are dormant in the Cow Canyon Allotment and the decrease of livestock use of the vegetation in the Clan Alpine Allotment which would benefit wildlife species.

4.12.5 Alternative 5: No Domestic Sheep Grazing

Cumulative effects under this alternative would be similar to the Proposed Action.

4.12.6 Alternative 6: No Grazing

Within the Cow Canyon, Clan Alpine, and Dixie Valley Allotments, some of the past actions, present actions, and RFFAs are having or could have positive impacts on wildlife habitat (e.g. invasive weed treatments, range improvement projects, wild horse gathers, etc...), while other past actions, present actions, and RFFAs are having or could have detrimental impacts on wildlife habitat (e.g. OHV races, mining, sand and gravel operations, geothermal activities, etc...). When combined with all past actions, present actions, and RFFAs, the the No Grazing Alternative should result in neutral to positive impacts on wildlife habitat.

4.12.7 Alternative 7: No Action

Within the Cow Canyon, Clan Alpine, and Dixie Valley Allotments, some of the past actions, present actions, and RFFAs are having or could have positive impacts on wildlife habitat (e.g. invasive weed treatments, range improvement projects, wild horse gathers, etc...), while other past actions, present actions, and RFFAs are having or could have detrimental impacts to wildlife habitat (e.g. OHV races, mining, sand and gravel operations, geothermal activities,

etc...). When combined with all past actions, present actions, and RFFAs, the the No Action Alternative should result in negative impacts to wildlife habitat.

4.13 Cumulative Impacts on Neo-tropical Migratory/Song Birds

4.13.1 Alternative 1: Proposed Action

Within the Cow Canyon, Clan Alpine, and Dixie Valley Allotments, some of the past actions, present actions, and RFFAs are having or could have positive impacts on migratory birds (e.g. invasive weed treatments, range improvement projects, etc...), while other past actions, present actions, and RFFAs are having or could have detrimental impacts to migratory birds and their habitats (e.g. OHV races, mining, sand and gravel operations, geothermal activities, etc...). Actions associated with the Proposed Action, such as constructing range improvements and conducting invasive weed treatments, can be expected to increase the quantity and quality of habitat available to migratory birds. When combined with all past actions, present actions, and RFFAs, the Proposed Action should result in neutral to positive impacts to migratory birds and their habitats.

4.13.2 Alternative 2: Dixie Valley Reduction in Livestock and Change in Season of Use

Cumulative effects under this alternative would be similar to the Proposed Action.

4.13.3 Alternative 3: Cherry Valley Closure to Hot Season Grazing

Cumulative effects under this alternative would be similar to the Proposed Action.

4.13.4 Alternative 4: Cow Canyon Change in Season of Use and Clan Alpine Reduction of AUMs

Cumulative effects under this alternative would be similar to the Proposed Action. Impacts would be reduced due to use when plants are dormant in the Cow Canyon Allotment and the decrease of livestock use of the vegetation in the Clan Alpine Allotment which would benefit avian species.

4.13.5 Alternative 5: No Domestic Sheep Grazing

Cumulative effects under this alternative would be similar to the Proposed Action.

4.13.6 Alternative 6: No Grazing

Within the Cow Canyon, Clan Alpine, and Dixie Valley Allotments, some of the past actions, present actions, and RFFAs are having or could have positive impacts on migratory birds (e.g. invasive weed treatments, range improvement projects, wild horse gathers, etc...), while other past actions, present actions, and RFFAs are having or could have detrimental impacts to migratory birds and their habitats (e.g. OHV races, mining, sand and gravel operations, geothermal activities, etc...). When combined with all past actions, present actions, and RFFAs, the the No Grazing Alternative should result in neutral to positive impacts to migratory birds and their habitats.

4.13.7 Alternative 7: No Action

Within the Cow Canyon, Clan Alpine, and Dixie Valley Allotments, some of the past actions, present actions, and RFFAs are having or could have positive impacts on migratory birds (e.g. invasive weed treatments, range improvement projects, wild horse gathers, etc...), while other past actions, present actions, and RFFAs are having or could have detrimental impacts to migratory birds and their habitats (e.g. OHV races, mining, sand and gravel operations, geothermal activities, etc...). When combined with all past actions, present actions, and RFFAs, the the No Action Alternative should result in negative impacts to migratory birds and their habitats.

4.14 Cumulative Impacts on Nevada BLM Sensitive Species

4.14.1 Alternative 1: Proposed Action

Within the Cow Canyon, Clan Alpine, and Dixie Valley Allotments, some of the past actions, present actions, and RFFAs are having or could have positive impacts on BLM sensitive species and their habitats (e.g. invasive weed treatments, range improvement projects, wild horse gathers, etc...), while other past actions, present actions, and RFFAs are having or could have detrimental impacts to sensitive species and their habitats (e.g. OHV races, mining, sand and gravel operations, geothermal activities, etc...). Actions associated with the Proposed Action, such as constructing range improvements and conducting invasive weed treatments, can be expected to increase the quantity and quality of habitat available to sensitive species. When combined with all past actions, present actions, and RFFAs, the Proposed Action should result in neutral to positive impacts to sensitive species and their habitats.

4.14.2 Alternative 2: Dixie Valley Reduction in Livestock and Change in Season of Use

Cumulative effects under this alternative would be similar to the Proposed Action.

4.14.3 Alternative 3: Cherry Valley Closure to Hot Season Grazing

Cumulative effects under this alternative would be similar to the Proposed Action.

4.14.4 Alternative 4: Cow Canyon Change in Season of Use and Clan Alpine Reduction of AUMs

Cumulative effects under this alternative would be similar to the Proposed Action. Impacts would be reduced due to use when plants are dormant in the Cow Canyon Allotment and the decrease of livestock use of the vegetation in the Clan Alpine Allotment which would benefit sensitive species.

4.14.5 Alternative 5: No Domestic Sheep Grazing

Cumulative effects under this alternative would be similar to the Proposed Action.

4.14.6 Alternative 6: No Grazing

Within the Cow Canyon, Clan Alpine, and Dixie Valley Allotments, some of the past actions, present actions, and RFFAs are having or could have positive impacts on BLM sensitive

species (e.g.invasive weed treatments, range improvement projects, wild horse gathers, etc...), while other past actions, present actions, and RFFAs are having or could have detrimental impacts to BLM sensitive species and their habitats (e.g. OHV races, mining, sand and gravel operations, geothermal activities, etc...). When combined with all past actions, present actions, and RFFAs, the the No Grazing Alternative should result in neutral to positive impacts to sensitive species and their habitats.

4.14.7 Alternative 7: No Action

Within the Cow Canyon, Clan Alpine, and Dixie Valley Allotments, some of the past actions, present actions, and RFFAs are having or could have positive impacts on BLM sensitive species (e.g.invasive weed treatments, range improvement projects, wild horse gathers, etc...), while other past actions, present actions, and RFFAs are having or could have detrimental impacts to sensitive species and their habitats (e.g. OHV races, mining, sand and gravel operations, geothermal activities, etc...). When combined with all past actions, present actions, and RFFAs, the the No Action Alternative should result in negative impacts to sensitive species and their habitats.

4.15 Cumulative Impacts on Visual Resources

4.15.1 Alternative 1: Proposed Action

Livestock operations have the potential to introduce contrasting elements of line, form, color, and texture against the surrounding landscape. These elements may be created from livestock trails, linear tracks from cross-country vehicle travel, and structural forms used for livestock operations. Due to the limited size of range improvements such as troughs, wells, or enclosure fencing and frequent placement adjacent to existing disturbance, the impacts to scenic values is expected to be minimal to the casual observer. Applying VRM design strategies for reduction of unnecessary disturbance during construction, proper siting and location within the landscape, avoidance of ridgelines and unique geologic features, and paint color selection would sufficiently reduce potential impacts to meet the VRM Class III objectives of the area.

Grazing activities could contribute in varying degrees to cumulative effects by influencing plant species composition which would impact the visual quality within the allotment, thus impacting the areas naturalness. Overall, it is anticipated that under the Proposed Action, the rangeland health and/or Table 2-2 Habitat Standards would be met so impacts from permitted grazing activities are expected to be minimal and should not impair visual conditions or quality. Due to the remoteness and dispersed locations of the springs and range developments within the allotments, there should be no cumulative effect from any past, present, and RFFAs related to range improvements or management activity.

Cumulative effects to scenic values within the CESA are expected to be minimal if Alternatives 1, 2, 3 or 4 is implemented. Implementation of either Alternative 5 or 6 would have a greater impact to vegetation from wild horse and livestock grazing which could alter the scenic values and influence plant species within the allotment. While these impacts would vary within differing allotments, overall, these impacts would be considered minimal throughout the cumulative analysis area as a whole.

Visual impacts would occur when range improvement within the allotments are installed or removed. However, due to the large acreage of the CESA, location of access roads within the allotments, and the unique placement of range improvements, the cumulative impacts would be minimal.

Motorized travel on existing perimeter routes, cherry stemmed roads and primitive routes within the allotments by recreationists, the permittee, and others would occasionally intrude on visual quality but should not affect the visual objectives. Recreation-related traffic in the area would remain constant regardless of the alternative selected. Permittee-related motorized traffic would remain fairly low. The overall scenic quality would not be expected to change under this alternative.

In the long term, the combined effects of grazing management activities, travel management planning, and recreational uses within the CESA should not affect the ability to meet the proposed visual quality objectives.

4.15.2 Alternative 2: Dixie Valley Reduction in Livestock and Change in Season of Use

Cumulative effects to visual resources are expected to be similar to the Proposed Action.

4.15.3 Alternative 3: Cherry Valley Closure to Hot Season Grazing

Cumulative effects to visual resources are expected to be similar to the Proposed Action in addition to a slight increase in the visual quality of the Cherry Valley area due to the elimination of grazing during the summer months. This would allow the native vegetation to be undisturbed for a longer period of time which would improve the naturalness of the area for recreational visitors.

4.15.4 Alternative 4: Cow Canyon Change in Season of Use and Clan Alpine Reduction of AUMs

Cumulative effects to visual resources in the Cow Canyon Allotment would be reduced due to changing livestock to winter use. The Clan Alpine Allotment visual resource effects would be reduced due to the decrease of livestock use of the vegetation. The reduction would result in an expected increase in visual quality and naturalness of the landscape.

4.15.5 Alternative 5: No Domestic Sheep Grazing

Cumulative effects to visual resources in the Clan Alpine Allotment would be reduced due to the elimination of domestic sheep use of vegetation. The reduction would result in an expected increase in visual quality and naturalness of the landscape, especially in the higher elevations where the domestic sheep tend to graze.

4.15.6 Alternative 6: No Grazing

Since grazing would be eliminated, the No Grazing Alternative would result in the reduction of cumulative effects to visual quality from livestock within the CESA. The elimination of grazing activity and the eventual removal of range improvements would be a beneficial effect on the overall visual resource objectives for the area. The cumulative impacts to vegetation from

livestock grazing would be greatly reduced and visual quality would improve as native vegetation is re-established.

However the impacts to water sources would not improve since they would still be impacted by wild horse populations, especially if the herd populations are not managed within the designated AML. This would result in the continued degradation of the quality and quantity of native vegetation affecting the natural and visual quality around water sources. The VRM Class I management objectives to preserve the existing character of the landscape within the four WSAs and the visual resource objectives throughout the CESA would likely not be met.

4.15.7 Alternative 7: No Action

The No Action Alternative would result in the gradual decrease in visual conditions and scenic quality. Wild horse gathers would be deferred, competition for feed and water by cattle, wildlife and wild horses would increase resulting in degradation of the vegetation and scenic quality of the area, especially within the WSAs. This alternative would not meet the visual quality objectives establish for this area.

The VRM Class I management objectives to preserve the existing character of the landscape within the WSAs and the visual resource objectives throughout the allotments would likely not be met.

4.16 Cumulative Impacts on Wilderness/Wilderness Study Areas

4.16.1 Alternative 1: Proposed Action

Grazing activities throughout the planning area could contribute, in varying degrees, to cumulative effects to wilderness characteristics within the WSAs by influencing plant species composition and health and therefor impact the areas naturalness. Overall, it is anticipated that under the Proposed Action, the rangeland health and/or Table 2-2 Habitat Standards would be met and impacts to the WSAs are expected to be minimal and should not impair wilderness values. Any identified impacts related to grazing activity within the WSAs boundaries can be identified and monitored and corrective actions taken to resolve any potential issues. Due to the remoteness and dispersed locations of the springs and range developments within the WSAs, there should be no cumulative effect from any past, present, or RFFA related to range improvements or management activity. Depending on personal perceptions, opportunities for solitude could be impacted by the presence of cattle with the WSAs especially along primitive routes or near range improvements, but should be minimal considering the size of the WSAs, the limited number of improvements and the movement of cattle between the summer and winter pastures.

Motorized traffic on existing perimeter routes, cherry stemmed roads and primitive routes by recreationists, the permittee, and others would occasionally intrude on outstanding opportunities for solitude but remain at acceptable levels. Recreation-related traffic in the area would remain constant regardless of the alternative selected. Permittee-related motorized traffic would remain fairly low. Opportunities for unconfined and primitive recreation would not be expected to change except under Alternative 4.

In the long term, the combined effects of grazing management activities, travel management planning, and recreational uses within the CESA should not affect the ability to meet the non-impairment standards and maintain the wilderness suitability for any of the WSAs.

4.16.2 Alternative 2: Dixie Valley Reduction in Livestock and Change in Season of Use

Effects to wilderness character are expected to be similar to the Proposed Action.

4.16.3 Alternative 3: Cherry Valley Closure to Hot Season Grazing

Cumulative effects to wilderness character within the Clan Alpine WSA are expected to be similar to the Proposed Action. The visual quality and naturalness of the Cherry Valley area would increase due to the elimination of grazing during the summer months. This would allow the native vegetation to be undisturbed for a longer period of time which would improve the naturalness of the area for recreational visitors. While the springs and forage in the Cherry Valley and War Canyon area are located outside of the Clan Alpine WSA boundary, cattle within this area could wander and forage in the WSA. Eliminating or reducing the number of cattle foraging in the Cherry Valley area would also reduce the number foraging within the WSA.

Under this alternative, the effects to the wilderness character and quality would be similar to those of the Proposed Action for the WSAs in the Cow Canyon and Dixie Valley Allotments.

4.16.4 Alternative 4: Cow Canyon Change in Season of Use and Clan Alpine Reduction of AUMs

Effects to wilderness character are expected to be similar to the Proposed Action.

4.16.5 Alternative 5: No Domestic Sheep Grazing

There would be no cumulative effect within any of the WSAs from this alternative since domestic sheep grazing is not permitted within the WSAs.

4.16.6 Alternative 6: No Grazing

Under the No Grazing Alternative, the cumulative impacts from grazing management or activities would be eliminated. Overtime, adverse impacts that can be attributed to grazing near primitive routes, range improvements and riparian areas would begin to recover which in turn would reverse impacts to the naturalness of the allotments. Grazing impacts affecting unconfined and primitive recreation along with permittee-related motorized traffic would be eliminated on primitive routes. Range improvements would eventually be removed, thereby reducing the effects of human imprint within WSAs.

4.16.7 Alternative 7: No Action

It is anticipated that under the No Action Alternative, the rangeland health and/or Table 2-2 Habitat Standards would not be met. The concentration of cattle and the increasing wild horses' populations from deferred gathers would gradually affect the quality and composition of vegetation around water sources, thereby adversely affecting the naturalness of the WSAs in the CESA.

5.0 PERSONS, GROUPS, AND AGENCY CONSULTATION AND COORDINATION

5.1 LIST OF PREPARERS

NAME	TITLE	PROJECT EXPERTISE
Teresa Knutson	Field Manager	Authorized Officer
Matthew Spaulding	Assistant Field Manager	Rangeland Resources Supervision
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Kristin Bowen	Archaeologist	Cultural Resources; Native American Religious Concerns
Daniel Westermeyer	Outdoor Recreation Planner	Wilderness; Recreation; Visual Resources, LWC
Kenneth Depaoli	Geologist	Minerals
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Michelle Stropky	Hydrologist & Soil Scientist	Riparian; Water Quality; Soils

5.2 INDIVIDUALS, ORGANIZATIONS, TRIBES OR AGENCIES CONSULTED

NAME
Michael & Claudia Casey; Permittees - Cow Canyon & Clan Alpine Allotments
Bench Creek Ranch Co., LLC; Permittee – Dixie Valley Allotment
Nevada State Grazing Board District N-3
U.S. Fish and Wildlife Service
Nevada Department of Wildlife
Fallon Paiute-Shoshone Tribe

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7.0 APPENDICES

- Appendix A – Maps
- Appendix B – Cow Canyon, Clan Alpine, and Dixie Valley Soils Information
- Appendix C – Standard Operating Procedures for Population-level Fertility Control Treatments
- Appendix D – Standard Operating Procedures for Herbicide Treatments
- Appendix E – Standard Operating Procedures for Herbicide Treatments
- Appendix F – Standards Determination Document