

1. Soils

For areas where surface disturbance is controlled/limited/prohibited: Prohibiting/controlling surface occupancy in these areas would reduce disturbance of vegetation and soil and subsequent erosion by wind and water in these areas.

Impacts to soils from vegetation treatments: Short-term vegetation loss and subsequent soil erosion. Long-term increase in vegetation production and soil conservation. Conservation of soil may occur to a greater degree because emphasis would be placed on restoring species diversity.

Impacts to soil from range improvements: Construction of range improvements would cause surface disturbances (both from construction and livestock congregation) would result in increased disturbance of vegetation and soil and subsequent erosion by wind and water in these areas.

Range improvements would also help to distribute livestock and thereby reduce localized vegetation removal and subsequent soil erosion.

From establishing DPCs: Managing for desired plant communities would enhance overall vegetation health, which would help to reduce erosion and conserve soil resources.

Areas Open to OHV travel: Allowing cross-country OHV use would remove and degrade vegetation and expose soils and thereby increase the potential for erosion by wind and water in these areas.

2. Water Resources

From vegetation treatments: Treatments that improve vegetation health would indirectly improve water resources and water quality. Treatments would initially increase localized erosion and sedimentation, but would decrease these impacts in the long term.

For areas where surface disturbance is controlled/limited/prohibited: Areas of NSO would prohibit surface disturbance, which could reduce sediment loading and salinity to nearby streams and protect existing water quality.

From surface disturbing activities: These surface disturbing activities could affect water quality by increasing erosion, sediment loading, salinity, and turbidity.

3. Vegetation

Example of an impact to vegetation from vegetation treatment: Treating 1,600 acres to reduce pinyon-juniper encroachment per year (32,000 acres over 20 years) would increase the ecological health of these areas by increasing the percent cover of native grasses and forbs.

For areas where surface disturbance is controlled/limited/prohibited: Managing areas as NSO for oil and gas leasing reduces surface disturbance from human uses. This decreases opportunities for noxious weed and invasive species establishment in leased areas. Indirectly this could

increase the ecological health of rangelands and forest and woodlands by increasing vegetation diversity. Decreasing surface disturbance could increase riparian/wetland functioning conditions by decreasing erosion rates and/or increasing vegetation diversity.

Impacts from ACEC designations, Alternative A: Managing 22,530 acres as an ACEC could reduce surface disturbance associated with human uses. Restricting surface disturbance can reduce opportunities for noxious weeds and invasive species establishment.

Restricting surface disturbance on 22,530 acres retains existing vegetation. Indirectly retaining vegetation could maintain existing ecological rangeland and forest and woodland health in these areas. Restricting surface disturbance could increase riparian/wetland functioning conditions that are within or adjacent to these areas by reducing erosion rates from human use.

Restrictions on surface disturbance could alter the location or extent of vegetation treatments.

Areas managed as Open to OHVs: Open OHV areas can increase surface disturbance and remove existing vegetation. This increases opportunities for noxious weeds and invasive species establishment and reduce vegetation diversity. Indirectly this could reduce the ecological health of rangelands and forest and woodland by decreasing vegetation diversity. Increasing surface disturbance can decrease riparian/wetland functioning condition by increasing erosion rates.

6. Wild Horses:

For areas where surface disturbance is controlled/limited/prohibited: Controlling/prohibiting surface disturbing activities would reduce vegetation removal and help to conserve forage for wild horses in these areas. This would also limit construction of range/water improvements in these areas.

For areas open to oil and gas leasing and development: Mineral leasing could result in surface disturbing and disruptive activities, which would result in increased removal of forage for wild horses. It could also temporarily displace wild horses and reduce their wild and free-roaming nature.

Impacts of OHV recreation: Allowing cross-country OHV use would remove and degrade forage for wild horses, displace wild horses from grazing, watering, and nursing areas, and can cause young foals to be abandoned by their mares. These impacts would reduce the wild and free-roaming nature of wild horses.

The presence of motorized vehicles at key watering sources displaces the horses away from their water sources which can stress their health. This could also occur at other water sources within the intermittent drainages that provide the ability for the numerous wild horse bands to disperse throughout the basin area, allowing for better access for the horses to forage and feed.

7. Fire

From establishing DPCs: Managing to achieve DPC objectives would decrease fire size/intensity by promoting diverse vegetation communities that are more capable at slowing the spread of fire.

From vegetation treatments: Conducting vegetation treatments would decrease fire size/intensity by reducing fuel loading and promoting diverse vegetation communities that are more capable at slowing the spread of fire.

From surface disturbing restrictions: Seasonal and/or no surface disturbance restrictions could preclude certain types of fire suppression activities within the restricted timeframe, which would limit the ability to control fires and to protect these sensitive resources. However, this could also reduce the number of ignition sources.

From Open OHV designation: OHV use would introduce additional ignition sources into the RMPPA, which in turn increase the probability of wildland fire occurrence. Also, cross-country OHV use would degrade vegetation communities, possibly making them more susceptible to fire. Closing an area to OHV use would decrease fire frequency in this area by reducing the number of ignition sources.

8. Cultural Resources:

For vegetation treatment decisions: Cultural resource inventories/clearances before implementation of vegetative treatments could result in the identification of new cultural resource sites. Following vegetation treatments, the reduction of vegetation cover would enhance short term surface visibility, allowing otherwise undetected cultural materials to be identified and recorded. However, there is an increased potential for sites identified following vegetative treatments to have been damaged or destroyed as a result of the treatment.

The temporary reduction of vegetation following vegetation treatments could result in a short-term increase in soil erosion. This could accelerate deterioration of cultural properties located in or adjacent to the area of vegetation treatment.

For wildlife NSOs, etc: There would be no impacts to cultural resources from surface occupying mineral developments located within $\frac{1}{8}$ mile of raptor nests sites, $\frac{1}{4}$ mile of Peregrine Falcon cliff nesting complexes, or in Waterfowl Habitat Management Areas and rookeries. In these areas, cultural resources would be preserved in place through no surface occupancy stipulations, although impacts within $\frac{1}{8}$ mile of raptor nests could occur due to changes in nest activity status.

Where NSOs are not used, such as Alternative B: Cultural resources would not receive indirect preservation from no surface occupation stipulations related to $\frac{1}{8}$ mile of raptor nests sites, $\frac{1}{4}$ mile of Peregrine Falcon cliff nesting complexes, or in Waterfowl Habitat Management Areas and rookeries. This would not necessarily lead to impacts from surface occupying mineral development features, but cultural sites in these areas would not receive protection from wildlife decisions.

For areas protected from surface disturbance: Restrictions on surface-disturbing actions within the ACECs would preserve cultural resources in place. Also: There would also be a reduced need for data recovery efforts and an associated reduction in the potential for site identification and recordation associated with development compared to areas open for oil and gas development.

For areas without any special restrictions on surface use: Cultural resources would be preserved through application of cultural resource decisions and law. Also: However, cultural resource inventories related to short-term land disturbances could result in the identification of sites and could also result in cultural resource values being preserved through data recovery.

Impacts to Cultural Resources from recreation: Allowing unrestricted recreation use could result in impacts. The potential for significant cultural resource impacts is greater from non-developed recreation sites. While use is dispersed, reducing the magnitude of impact at a given site, non-developed recreation sites usually don't have cultural resource inventories/clearances prior to being established. Impacts from non-developed recreation are mitigated on a case-by-case basis when discovered.

9. Paleontological Resources:

Allowing surface disturbance (permitted activities): Allowing surface occupancy or ground disturbing activities could result in the identification or recovery of paleontological resources. Paleontological resources would be protected through application of paleontological resource decisions.

Preventing surface disturbance (permitted activities): Preventing surface disturbance and/or occupancy in these areas would indirectly protect paleontological resources in place.

Impacts from Open OHV designation, Alternative A: Cross-country OHV use would decrease vegetation density, increase erosion, and generally break, spread, and otherwise disturb paleontological resources at the surface. Unlike other permitted uses, paleontological resource assessments/clearances were not completed prior to designating these large "open" areas. Mitigation of paleontological resource damage would be accomplished through data recovery efforts implemented on a case-by-case basis when the damage is discovered. These impacts would be most likely on XX acres of Class I and Class II paleontological areas in areas open to cross country OHV use.

11. Visual Resource Management

For areas where surface disturbance is controlled/limited/prohibited: NSO restrictions would indirectly prevent some impacts to visual characteristics.

For areas designated as VRM Class 2: VRM Class II designation in this ACEC would directly help to maintain the landscape character by requiring surface disturbing actions to comply with VRM objectives.

For areas open to oil and gas leasing and development: Open leasing increases the potential for visually obstructive oil and gas developments, which would change the visual character of the landscape.

Impacts to VRM from OHV Open play area in Sand Wash SRMA: Vegetation loss and fugitive dust would continually change the visual characteristics of this landscape, however, such

changes would be in harmony with the VRM Class IV objectives. User created trails in formerly undisturbed areas would be the biggest impact to the visual setting.

12. Energy and Minerals:

For Timing stipulations, impacts would be: Seasonal restrictions would restrict the time available to complete exploration and development activities. The restrictions could defer oil and gas development activities, could require adjustments in drilling or exploration, and would potentially increase operating expenses. Where seasonal restrictions severely limit the time available to complete activities, relocation of surface facilities may be required

For No Surface Occupancy stips for small areas where directional drilling would be feasible (up to ¼ mile buffers, narrow areas such as Limestone Ridge), the impacts are: Areas open to oil and gas leasing with NSO stipulations could require directional drilling or other extraction methods to access resources. This management action could result in the relocation of facilities.

For NSO stipulations are areas wider than ½ mile or in other situations where operators would not be able to access the resource given today's technology (such as the WTPD ACEC, Lookout Mountain, etc), some mineral resource may be left in the ground. The impact is summarized as: Areas open to oil and gas leasing with NSO stipulations could require directional drilling or other extraction methods to access resources. This management action could result in the relocation of facilities. Where directional or horizontal drilling is not feasible, resources could be lost for development. Note: The EPCA analysis will attempt to quantify the amount of resource unavailable due to restrictions for each alternative.

For areas under a Controlled Surface Use stip, the impacts would be: Restricting surface disturbance activities could, in some cases, result in the relocation of mineral facilities, including oil and gas facilities. This avoidance measure could require installation of facilities in areas that are more difficult to develop or reclaim, or that are located farther from the mineral resource, which would potentially increase operating expenses. This management action would limit the location but not the number of oil and gas well pads.

13. Livestock Grazing:

For any decisions that would limit, control or prohibit surface disturbance, it will affect livestock grazing like this: Controlling/prohibiting surface disturbing activities on fragile soils would reduce vegetation removal and help to conserve livestock forage in these areas. However, This would also prohibit construction of some range improvements in these areas.

For vegetation treatments: Short-term forage loss. Over long term, would improve overall vegetation health and thereby improve/increase livestock forage (but not necessarily correspond to an increase in permitted AUMs).

Actions that would disturb livestock, such as concentrated recreation or development would result in harassment of livestock, and potential for livestock injury.

For many livestock grazing decisions in Alternative B, impacts are summarized as: This could result increase of AUMs to above preference. Wait for quantification of AUMs gained and lost by livestock actions.

For many livestock grazing decisions in Alternative C, impacts are summarized as: This could result in re-establishment of AUMs to at or above preference levels. Wait for quantification of AUMs gained and lost by livestock actions.

For many livestock grazing decisions in Alternative D, impacts are summarized as: This could result in increase in forage, but not an increase in AUMs. Wait for quantification of AUMs gained and lost by livestock actions

Although gain and loss of AUMs resulting from the decisions are not yet quantified, we do plan to quantify this for the analysis.

14. Recreation

For river segments determined to be suitable for Wild and Scenic River: Outstanding river-related recreation opportunities along the Yampa segments 1,2, and 3 would benefit from protection of recreation values, tentative classification, and the free-flowing nature of the rivers that would result from management of these rivers as suitable for wild and scenic designation.

For river segments not determined to be suitable for Wild and Scenic River: Outstanding river-related recreation opportunities as identified in Alternative A would not benefit from protection of Wild and Scenic eligibility or suitability protections under this alternative. Certain areas may still provide for other recreation management from other special designations such as SRMA management.

Impacts to recreation from Vermillion Basin decisions, Alternative C. Impacts to areas likely to have wilderness characteristics will be similar. The management actions listed above for Zone 1 could cause impacts to recreationists seeking solitude and unconfined and primitive recreation opportunities; however, by utilizing state of the art technology, reducing visual intrusions, leasing larger sections, limiting OHV use to designated roads, and managing the Vermillion Bluffs area as VRM Class II, would reduce these impacts.

Managing Zone 2 as closed to leasing, closed and limited to designated roads and trails for OHV use, and as VRM Class II would protect primitive recreation values and the opportunity for solitude and primitive/unconfined recreation.

For areas with NSO designations: In NSO areas, prohibiting surface occupancy would preserve the natural character of the landscape while maintaining existing recreation opportunities.

A couple examples of impacts of SRMA designation: SRMA management of the South Sand Wash area would provide recreation management for all forms of motorized recreation. The SRMA would address user and resource conflicts while providing a quality motorized experience for all types of users (cross-country, trail-based, single-track, etc).

SRMA management of the Serviceberry area would provide recreation management for hunting and both motorized and non-motorized recreation. Limiting OHV use to designated trails in Zone 1 and closing one 2 would provide opportunities to both user groups and diversify the recreation opportunities and experience in the area, while reducing user and resource conflicts.

For areas not designated as SRMAs in one alternative: Managing the area as part of the ERMA would not likely meet the recreation demand and associated user and resource conflicts throughout this area, which would result in impacts to both users and the natural resources that are important to recreationists. A significant loss of recreation opportunities and degraded recreation experiences could occur in this area.

15. Forest and Woodland Products:

From vegetation treatments: Implementing vegetation treatments on an average of 3,030 acres per year (60,600 acres over the life of the plan) would improve the quality of forest and woodland products available by decreasing mortality from insect or disease infestations.

For areas where surface disturbance is controlled/limited/prohibited: No surface occupancy stipulations could alter the location of forest and/or woodland product harvest by restricting where infrastructure (i.e. landings) associated with harvest are located. And: Restricting surface disturbance on 22,530 acres to protect relevant and important values from irreparable harm may alter the extent of forest and/or woodland product harvest.

17. Transportation and Access:

For areas closed to OHVs: Closing the ACEC to OHV use would eliminate motorized travel opportunities in this area. This is a significant impact.

For areas Limited to Designated Routes: Limiting the ACEC to designated routes would eliminate motorized cross country travel opportunities in this area or restrict some motorized travel and OHV opportunities.

For areas open to oil and gas leasing and development: Leasing for oil and gas increases the potential for oil and gas developments, which could impact the OHV experience for some users.

For areas where we intend to manage OHV recreation, create more access, improve signing, etc (i.e. Sand Wash SRMA): Improvement of signing and county road access could improve access and enhance OHV opportunities in this area for some users. For other users, increased management could decrease the rural feel of OHV experiences.