

# Appendix O - Effects of Intensity and Season of Grazing

## Introduction

Livestock impacts to vegetation resources, both negative and positive, occur due to defoliation and browsing, as well as the physical impacts associated with the presence of livestock. Although livestock grazing in desert steppe communities is seldom necessary to meet vegetation management objectives, negative impacts can be maintained within acceptable limits with implementation of appropriate management actions. Many successful livestock grazing strategies have been developed to achieve specific ecological or management objectives. The effectiveness of meeting objectives when implementing a given strategy depends on a number of factors including the associated resource values present, ecological characteristics present, physical characteristics present, and livestock management practices (Cook 1971; Heady 1975; Lacock and Conrad 1981; Holochek et al. 1989). General trends may hold true in the relative effectiveness of different grazing strategies to meet specific management objectives, but site-specific strategies are required to integrate the interactions of unique features present within a pasture. Though the ecological consequences of implementing a given grazing strategy occur at the pasture level or smaller, livestock operations dependent on public land forage resources require grazing schedules which support animals on public and private land throughout the year.

The consequences of short-term impacts of livestock use, both in upland and riparian communities, are related to the season in which livestock graze a vegetation community as well as the intensity and duration of use in a given year. Long-term consequences result from the sequence of annual use a vegetation resource receives, the severity of use, the competitive response of individual vegetation species to selective grazing or browsing by herbivores, and the resultant changes to community composition. Season and intensity of livestock grazing use in riparian communities, as well as in upland communities, has been found by a number of authors to affect riparian function and the attainment of other riparian-related objectives (Elmore 1991; Elmore and Kauffman 1993; Chapman 1987; Belsky et al. 1997; Kinch 1989; Myers 1987; and Platts 1989). Periodic opportunities for recovery of health and vigor and for recruitment of new individuals into upland and riparian communities are also required to maintain or improve vegetation conditions for the amenity values of current and potential vegetation resources as well as commodity production.

## Intensity of Use

Short-term impacts to vegetation resources are the result of the combined utilization levels, the season of use, and the duration of use. For the purposes of analysis, light utilization is defined as up to 40 percent, moderate utilization is defined as from 41 to 60 percent, and heavy utilization is defined as 61 percent and greater. Generally, the vigor of key herbaceous species can be sustained with light and moderate utilization, while heavy utilization reduces photosynthetic tissue below levels needed to maintain root reserves, diminishing the vigor of key species. However, the timing of grazing use relative to plant phenology and the occurrence of repeat grazing are usually considered more important factors affecting the health and vigor of key species as well as changes to vegetation community composition. Light and moderate utilization during periods when plants are withdrawing reserves from roots for growth, during regrowth, or during seed formation will impact herbaceous species greater than the same level of utilization during periods when the plant is not actively growing. Additionally, the composition of a vegetation community, as it relates to the relative palatability of species present, will affect measured utilization. Long-term impacts of moderate to heavy utilization will also be dependent on the individual species' ability to maintain health and vigor and remain competitive with livestock use. Though stocking rates are established to limit utilization to light or moderate levels, factors affecting livestock distribution will cause some areas where animals tend to concentrate to be utilized heavy while other areas remain unused or only slightly used.

The intensity of livestock use will also affect other resource values, as well as the ability to meet management objectives as a result of standing vegetation material and ground cover remaining after use. As utilization levels are increased, canopy cover of grazed and browsed plants declines. Additionally, deposition of protective plant litter to the soil surface and incorporation of litter into the soil is decreased. As a result, increased utilization can reduce cover of bare ground by vegetation material and litter, increase puddling of

clay soils by raindrop impact, reduce rates of infiltration of precipitation, and reduce permeability and moisture storage of soils. Excessive utilization levels can contribute to increased overland flow of precipitation and snowmelt, soil erosion, siltation of streams, and a decline in surface water quality affecting beneficial uses.

### **Season of Use**

Livestock impacts to public land resources are dependent on the season of use as it relates to timing of grazing during the growth cycle of plants, spacial and seasonal conflicts with annual life cycles of wildlife species, physical condition of resources, and other factors. All dates referenced are approximations dependent on elevation and climatic conditions and need to be interpolated on a site-specific basis. Analyzed seasons overlap due to variation in the growing conditions between years and a lack of clear seasonal divisions in anticipated impacts to existing or potential resource values. Thus, impacts resulting from livestock use early or late during any season may also be accurately defined by described impacts during the proximate season based on those variables.

### **Winter (November 1 to March 15)**

Upland herbaceous plants are mostly dormant during the winter season of use with the exception of some photosynthesis by new growth after fall and winter precipitation and during warming weather trends, primarily on south exposed slopes. Forage quality of cured standing herbaceous vegetation is moderate to low, improving when mixed with new growth or browse from palatable shrubs. Light to moderate utilization of standing cured herbaceous vegetation is not detrimental to health and vigor of plants. Light to moderate defoliation of new growth usually is not detrimental to maintenance of health and vigor of herbaceous species since soil moisture will be available for spring and early summer growth, regrowth, and completion of the annual cycle prior to soil moisture depletion. Grazing of fall sprouting annual species may reduce competition with desirable perennial herbaceous species during the following growing season. Light to moderate utilization levels will retain adequate standing material and litter for soil protection from wind erosion, rainfall impact, and late winter and spring runoff. Heavy utilization levels will expose the soil surface to these negative impacts, especially on sites with marginal potential to produce a reasonable vegetation cover and in years with limited growth of protective vegetation cover. The potential for repeated grazing of localized areas, resulting in heavy utilization, is present with severe weather conditions and snow accumulation reducing livestock distribution. Negative impacts intensify on palatable shrub species when snow accumulation makes herbaceous species unavailable. Livestock management actions to maintain animal distribution are oftentimes limited by weather and accessibility.

Winter use is usually the least detrimental to soils and to dormant riparian herbaceous and woody vegetation. Herbaceous riparian species are mostly dormant in this season with some active photosynthesis occurring during warming trends when plants are free of snow and ice cover. During these fair weather periods, dormant woody riparian species may be used to some degree; therefore, may be subject to live twig growth being removed. Riparian communities tend not to be used by livestock during moderate weather conditions where cold air drainage settles into low-lying areas throughout the majority of the winter. Dramatic recovery rates have occurred in riparian areas when cold drainage patterns and/or the availability of alternate livestock water keep livestock away from streams. Where winter temperatures are moderate and cold air does not settle into low-lying areas, dormant woody riparian species can be negatively affected by browsing or trampling when livestock movement is restricted. The potential for livestock to concentrate in riparian communities to avoid severe weather conditions and attempt to drift to base property feeding grounds requires a high level of livestock management activity to avoid negative impacts to riparian vegetation resources at a time when access to public land is limited. Winter use provides rest during the growing period every year, promotes plant vigor, seed and root production, and seedling establishment. It may be the period of greatest use of browse species by both livestock and wildlife depending on temperatures, snow depth and duration, availability of other feed, animal concentration, forage/browse preference, and the extent of the woody plant community. A full understanding of expected livestock use patterns is necessary using this strategy or land use objectives

may not be achieved. Utilization levels of herbaceous riparian species should be limited to maintain adequate material on streambanks and floodplains for protection during late winter and spring runoff. Heavy grazing during the winter can eliminate the streambank vegetation mat needed to prevent soil erosion from winter and spring floods or ice events. Throughout the winter, frozen soil and streambanks are more resilient to mechanical damage thereby minimizing streambank shear, thus resulting in little bank damage.

Areas suitable for winter grazing by livestock are, at times, also prime winter range for native large herbivores. Spacial conflicts for habitat and conflicts for limited forage are more common than at other times of the year. With snow cover of herbaceous species, livestock browse of shrub species may remove a valuable winter source of feed for wild herbivores. Viability of mountain shrub species as well as aspen recruitment may be jeopardized with winter use of these vegetation communities by livestock.

### **Spring (March 1 to April 30)**

Early growth of herbaceous species, primarily cool season species, occurs with rising soil temperatures. Minimal impacts to plant vigor and health occur with light to moderate utilization of early growth when adequate soil moisture is available for regrowth and completion of the annual growth cycle. Moderate utilization, in years with minimal soil moisture available for regrowth after use, could deplete plant vigor and health, especially during periods of critical growth. Heavy to severe defoliation can expose the soil surface to future erosive forces of wind and water. Additionally, heavy utilization can remove structural diversity valued for wildlife habitat. Use of palatable annual species early in this period may reduce competition with desirable native perennial species when grazing is removed and adequate soil moisture remains to complete growth cycles.

Early growth of herbaceous vegetation contains high water content and thus, when combined with leached old growth, has only moderate forage quality, improving after mid-March in most years. The hazard of compaction of wet soils with hoof action of livestock may be present, resulting in a reduction of infiltration and soil moisture holding capacity in fine-textured soils. Opportunities for good livestock distribution are present with more locations of available water and cool air temperature.

Riparian vegetation communities are less vulnerable to negative impacts from livestock use during this season for a number of reasons. Improving forage quality in upland communities will draw livestock from riparian communities as will available alternate water sources located outside streamside riparian communities. Spring use normally results in better livestock distribution between riparian and upland areas due to flooding of riparian areas and presence of highly palatable forage on the uplands. Also, cooler seasonal temperatures allow livestock to forage longer between visits to water sources. Opportunities for regrowth of herbaceous species are present through the remainder of the growing season. Most woody riparian species do not initiate growth until late spring, resulting in lower palatability than at other seasons of the year. If periods of use allow for adequate regrowth and do not correspond to the seasons of woody riparian species reproduction, grazing during this period can be very beneficial to riparian areas, especially in establishing woody plants. Conversely, this can be detrimental to upland grasses if grazing strategy results in utilization during the critical part (shoot elongation) of their growing season. Heavy defoliation and physical impacts by livestock can expose banks and floodplains to the hydraulic energy of high spring streamflow and peak runoff. Heavy use on finer textured soils in riparian areas with steep gradients may cause soil compaction, accelerated streambank losses or increased erosion rates. Hoof action can result in trampling of seed and litter into wet soil, although on some saturated soils, plants are more easily uprooted by grazing animals than would be possible later in the year. Care must be taken to prevent streambank hoof shearing and to leave adequate carryover vegetation for bank protection and silt filtering during spring runoff.

Wild native herbivores typically reach their lowest physical condition during this period, especially in years with heavy snowfall and limited forage availability. As a result, the potential for competition between livestock and wildlife species early during spring use is great on winter ranges. Activities associated with

livestock management during this period can also increase stress to wildlife species, especially within areas of raptor nesting habitat.

### **Upland Growing Season (April 1 to July 15)**

Upland plants are actively growing, removing carbohydrates from roots and crowns for early growth, regrowth, and seed formation. Herbaceous plants are susceptible to defoliation impacts as a result of the depletion of carbohydrates in roots and crowns, especially with moderate to heavy utilization, repeated grazing, and/or frequent growing season use. Grass species are especially susceptible to impacts from defoliation during seed formation and seed stalk elongation, due to the increased withdrawal of carbohydrate reserves from roots and crowns. Opportunities for regrowth and completion of the annual growth cycle after defoliation are limited, especially in years of below average precipitation. Introduced perennial bunchgrass species are better adapted to maintaining vigor with defoliation than native herbaceous species, having evolved with the grazing pressure of more large herbivores. Soil compaction from the physical presence of livestock remains a concern with moist soils, especially in areas with shallow and fine-textured soils. Upland shrub species reach maximum growth withdrawing shallow soil moisture early and deeper water reserves as the season progresses. Opportunities for good livestock distribution during the early portion of this season are present with more locations of available water, high palatability of high quality forage, and cool air temperature. Repeated use during the growing season can be expected to reduce vigor and health of desirable perennial herbaceous species and lead to trends away from desired conditions.

Riparian vegetation communities initiate active growth during this season, especially during the later portion. Impacts to riparian resources are minimal with light to moderate utilization levels on herbaceous and woody species and minimal physical impacts. Livestock begin to concentrate in riparian vegetation communities as the season progresses for higher quality forage, browse, water, and shade with higher ambient temperatures. Opportunities for regrowth of herbaceous vegetation following use remain throughout the summer with available moisture in riparian soils. Desirable woody riparian species become vulnerable to impacts from moderate to heavy use mid-way through this season when active growth is initiated. Heavy levels of utilization or high levels of physical impacts can expose banks and floodplains to impacts from high streamflows during late spring and summer flooding.

### **Summer (July 1 to October 31)**

A deferred season of use provides for livestock grazing after most of the upland species have reached seedripe stage and replenished carbohydrate reserves. Most upland plants, including native and introduced bunchgrass species, have completed their annual growth cycles and have entered senescence. As a result, upland communities have declining forage quality and lower palatability to wildlife and domestic herbivores. Livestock will tend to turn to palatable browse species, especially when herbaceous utilization levels become heavy late during this period, to maintain a given level of nutrition when mixed with lower quality herbaceous feeds. With the onset of senescence, native upland vegetation communities are less susceptible to negative impacts of light to moderate defoliation. Introduced perennial bunchgrass species are better adapted to maintaining vigor with defoliation than native herbaceous species, having evolved with more large herbivores. Heavy to severe defoliation can expose the soil surface to future erosive forces of wind and water. Livestock distribution away from water sources is limited by high ambient temperatures increasing the need for frequent watering and causing cattle to graze primarily during the evenings and throughout the night, while becoming less active during daylight hours. Localized impacts from defoliation and the physical presence of livestock intensify, especially near water sources and other areas of concentrated activity. Additionally, nutrient concentration will occur in areas of concentrated livestock activity.

Riparian vegetation species, both woody and herbaceous are actively growing with a sustained source of water available for continued photosynthesis. The potential for regrowth of herbaceous species remains through most of the summer, while soil moisture and temperatures are maintained. Regrowth of woody riparian species is limited after moderate to heavy use, especially late in the period. Forage value and

palatability are high from standing riparian herbaceous and woody growth. The potential for poor livestock distribution, away from riparian communities, exists as the availability of stock water in upland communities declines, forage value in upland communities declines, and with higher ambient temperatures. Livestock tend to concentrate in riparian vegetation communities for water, high quality green forage, and shade when intensive livestock management is lacking. Use during this period typically provides no rest during the growing period for plant vigor, reproduction, or litter accumulation and generally results in heavy utilization of woody riparian vegetation, trampling damage, soil compaction, and accelerated streambank erosion. Since rest is never provided, riparian plants do not replace food reserves in roots; seed may or may not be produced. Concentration of livestock in riparian areas results in heavy use of woody and herbaceous riparian species. Impacts to riparian values are typically greater during summer and early fall use than at other seasons of the year.

Competition between wildlife species and livestock is usually minimal when summer utilization levels are maintained at light to moderate levels. Those wildlife species that are mobile tend to inhabit portions of the range less used by livestock, while those less mobile species tend not to be significantly impacted so long as utilization levels and related management activities do not disrupt habitat and security.

### **Fall (September 15 to December 15)**

Herbaceous upland plants remain senescent with minimal new growth and some regrowth during warming conditions when soil moisture has been replenished by fall precipitation. Upland herbaceous health and vigor is not impaired with light to moderate utilization of cured standing materials. Heavy to severe use may expose soils to erosion from wind and water for an extended period through the initiation of spring growth. Cooler ambient temperatures, with some fall regrowth of upland herbaceous species, may provide for better livestock distribution than during summer. Forage quality of upland herbaceous species remains low, though improving with the initiation of new fall growth. Livestock will retain a percentage of palatable browse species in their diets, when available, to maintain a given level of nutrition by combining it with lower quality herbaceous feeds.

Riparian herbaceous and woody species enter dormancy with cool temperatures and freezing conditions. Opportunities for limited livestock grazing of pastures containing riparian values are present so long as utilization levels on herbaceous and woody species do not impair riparian function with peak streamflows. Moderate to heavy use of riparian herbaceous species, with little opportunity for regrowth to facilitate sediment retention, may expose banks and floodplains to hydraulic forces of high streamflow during winter and spring runoff. The potential for improved livestock distribution, away from riparian communities, is greater than during summer use, though less than during spring use. During years with extended summer heat and drought, livestock water may be limited to riparian communities. Use during this season can be detrimental to riparian vegetation if heavy utilization of woody species occurs because temperatures are warm, fall green-up has not occurred, or utilization is not closely monitored. Fall grazing usually allows for less soil compaction in riparian areas; although streambank damage may be considerable from hoof action shearing if excessive fall precipitation occurs. Livestock impacts to riparian vegetation are directly related to the intensity of livestock management practices implemented by operators.

Livestock's use of big game winter range can limit the availability of both herbaceous and browse species for wildlife during subsequent winter periods as identified in the section on winter use. Competition between livestock and wildlife species increases with greater levels of utilization and the resultant increase of browse species in livestock diets.

### **Seasonlong**

Seasonlong grazing of a pasture generally begins during the growing season and extends to the end of the period of authorized use, typically into the fall period. Many of the impacts associated with use during the growing season occur with seasonlong use. Additional impacts occur from localized livestock concentration

late in the season as sources of water diminish, as forage quality in upland communities declines, and as ambient temperatures rise. The effects of seasonlong grazing on species composition are largely dependent on the degree of utilization on the key species. Although the proposed stocking rates are designed to achieve moderate levels of utilization on most areas, factors such as terrain, location of fences and water, and vegetation types available, prevent uniform patterns of grazing. Heavy grazing will inevitably occur in some areas while light utilization will occur in others. A trend away from desired conditions is expected in areas receiving moderate to heavy utilization on an annual basis, especially when that use occurs during critical growing periods.

Livestock tend to concentrate in riparian communities from summer on, when these areas are available. Decreases in woody and herbaceous riparian species are expected to occur in streamside riparian vegetation communities accessible to livestock under seasonlong use. Livestock prefer green herbaceous and new growth of woody species within riparian communities as upland communities dry and lose forage quality in late summer. This strategy typically provides no rest during the growing period for plant vigor, reproduction, or litter accumulation. It generally results in heavy utilization of woody riparian vegetation, trampling damage, soil compaction, and accelerated streambank erosion.

No pastures in the planning area are scheduled for seasonlong (March 1 through February 28) grazing by domestic livestock, but wild horse use does occur seasonlong in HMAs.

#### **Exclusion (No Scheduled Livestock or Wild Horse Use)**

Defoliation of herbaceous and shrub species is limited to that which occurs from insect and native herbivore use. Except in instances when native herbivore numbers are high, upland utilization levels during the growing season and dormant seasons are light. In any year, small areas of concentrated native herbivore use may have moderate to high utilization levels. Residual standing herbaceous material and litter accumulation is greater than with scheduled use by livestock or wild horses in any season. Soil protection from rain impact is high, limiting erosion and improving soil structure and infiltration. The initiation of herbaceous growth with warming spring soil temperatures may be slightly delayed due to greater interception of solar radiation by standing and down litter.

The complete elimination of livestock and wild horses from riparian vegetation communities in many cases provides for a more rapid rate of recovery of both herbaceous and woody components than will scheduled use in any season. Residual herbaceous material and a diverse age structure of woody species will protect streambanks during peak flows of all seasons. In the absence of consideration of the ecological linkages between upland, riparian, and aquatic communities, potential rates of recovery of riparian communities may be limited when upland management plans are not designed to restore and protect the entire landscape.

#### **Grazing Schedules**

Livestock grazing schedules are implemented to provide opportunity for unacceptable resource conditions to improve, to maintain resource values which are consistent with the DRC and other management objectives, or to avoid unacceptable impacts to resource values or conflicts between uses of public land resources. Though some established grazing schedules provide for annual use of a pasture during one specified season, more often the mix of management objectives associated with a given pasture can better be met by varying the season of use over a repeating cycle of two or more years. Multi-year grazing schedules are primarily developed with varied seasons of use through an established rotation to allow desirable vegetation species the opportunity to regain vigor and health for future growth, productivity, and sustainability of resource values. Similarly, opportunities for recovery from grazing impacts to other resources, specific to a season of use, may be provided by varying the season in which livestock graze a pasture. Long-term and cumulative impacts of implementing a grazing scheme will define trend toward future vegetation communities and resource conditions.

Conversely, constraints necessary to meet multiple management objectives may limit opportunities for grazing use to one short period annually, or no scheduled use in some years, to ensure that all management objectives are met. Examples include the compounding effects of objectives to improve riparian function or meet other riparian management objectives while maintaining upland stability and function. Though scheduled use during the upland growing season annually may be compatible with objectives to improve riparian function, health and vigor of desert steppe vegetation communities can seldom be improved or maintained with annual growing season defoliation. Similarly, scheduled deferment of grazing use until after seed-set may be compatible with meeting upland vegetation management objectives while not maintaining healthy riparian vegetation communities which support proper functioning condition. As a result, the combined objectives may further constrain opportunities for varied seasons of use.

### **Speciality Pastures**

Construction of fences and use of other barriers to livestock movement may be utilized to create speciality pastures and implement grazing schedules consistent with meeting specific management objectives when resource values, such as riparian vegetation communities, are present in only a portion of an existing pasture. Development of speciality pastures is applicable in areas where resource values encompass a small enough area to justify fencing and to manage them separately from areas that are solely comprised of upland vegetation communities and few other resource values. Speciality pastures may continue to be grazed while meeting objectives or excluded from livestock use. Construction of fences to create corridor or riparian pastures allows riparian recovery or maintenance while allowing grazing of other uplands sites to occur with grazing strategies providing for more livestock use. Riparian pastures are normally areas of rangeland containing both upland and riparian vegetation communities large enough to support some livestock use while managed to attain riparian, water quality, and/or aquatic objectives, as opposed to stream side pastures created through corridor fencing. Total rest of riparian pastures is required at times during the first few years of corrective management of a deteriorated riparian area where the objective includes and the site potential supports the establishment of shrub or tree growth above the reach of livestock. As riparian vegetation within riparian pastures regains vigor and productivity, available forage for livestock use may often be increased while continuing to meet management objectives. Corridor pastures are generally excluded from livestock use, or used only for trailing purposes, since the areas enclosed are usually too small and narrow for proper grazing.

### **Grazing Rotations**

Most multi-year grazing schedules can be defined as either a deferred-rotation or rest-rotation schedule. Both types of grazing schedules were designed primarily to promote plant vigor, seed production, seedling establishment, root production, and litter accumulation for herbaceous plants in upland ecosystems. Deferred rotation grazing schedules provide for one or more years of grazing use after seed-set, following one or more years of growing season use. In its simplest form, a deferred rotation grazing schedule within a pasture provides for a two-year rotation cycle with one year of use during the critical period of plant growth followed by one year of deferment of use until after the growing season. More conservative schedules provide for a higher proportion of deferment than years of use during the period of active growth. Rest-rotation schedules allow for similar opportunities for recovery with one or more years of the grazing rotation in which no use is scheduled. Caution should be implemented to ensure that higher levels of utilization during use periods of a pasture do not preclude meeting management objectives while providing for rest in other pastures. At moderate utilization levels, either rest-rotation or deferred-rotation grazing systems can allow for adequate recovery of upland herbaceous root growth and associated carbohydrate storage following the impacts of critical season defoliation. The number of years of rest or deferment necessary to meet vegetation management objectives is dependent on a number of factors including resource conditions, soil and climatic factors, and the intensity of grazing use. With an increase in the proportion of years of rest or deferred use to the number of years of use during the critical season, the opportunity for recovery and maintenance of plant health and vigor is improved. Recovery following heavy use during the critical growing season may require a substantial number of rest or deferment years to provide adequate opportunities for recovery of health and

vigor, especially when growth conditions are poor or if the vegetation resource is in poor ecological condition.

Most rest-rotation and deferred-rotation grazing schedules, designed for the physiological needs of herbaceous upland plants, can be successful within wide, low gradient sedge, rush, and grass-dominated riparian sites, provided utilization levels in riparian communities are maintained within acceptable limits. These strategies have been found to maintain species diversity and productivity of meadow systems when use is deferred in these areas until after seedripeness. This promotes seed and root production, seedling establishment, and total growing period rest for each pasture every year. The need for additional livestock management may be necessary to maintain livestock distribution. Riparian herbaceous species having a natural potential to regrow following use provide for recovery and maintenance of resource values in years of the rotation when grazing occurs during the growing season. Caution in years of mid to late season use should ensure that cover necessary to buffer erosion from floods and ice is maintained and to trap sediment during high flow events. Similarly, in years of the rotation when grazing occurs during a season with high soil moisture, caution should be implemented to prevent trampling and shear damage to banks.

Rest rotation and deferred-rotation schedules are usually inappropriate for shrub-dominated riparian areas, especially in the primary stages of willow establishment and development. Establishment and growth of woody riparian species, which is attained in years when the pasture is rested or during a season of use compatible with progress toward attaining riparian objectives, may be nullified in years of use when grazing occurs during a period not consistent with maintenance or improvement of riparian values. Maintenance of established riparian communities containing a woody component may ultimately result in a population of only mature decadent stands of woody species, providing no ongoing replacement of younger stands. When these schedules are implemented, levels of use of woody riparian species must be monitored because utilization occurring during the summer months has been found to limit woody plant succession on gravel bars and other scoured areas along stream channels. Heavy utilization during late grazing periods can lead to removal of vegetation needed to protect streambanks from ice and water scouring.

Improvement of vegetation composition toward desired conditions may require recruitment of new individuals of desired species through seeding, planting or natural regeneration from vegetation materials on site. Establishment of desirable seedlings into a vegetation community may require a sequence of rest and/or deferment years to avoid defoliation and physical impacts of livestock presence. Similarly, recruitment of new shoots of desirable woody species in upland and riparian may require more than one year of rest to establish old wood, which is less palatable, and to allow growth above the reach of domestic herbivores. Removal of livestock from riparian vegetation communities may be required to allow these communities to recover herbaceous and woody species composition adequate to attain functioning condition. Upon improvement to functioning condition, a grazing schedule consistent with maintaining riparian function may be implemented.

Generally within desert steppe vegetation communities, no more than one period of use of a given pasture is planned in any one year's grazing schedule. An exception is spring/fall use in which livestock are removed in the spring while sufficient soil moisture is available for regrowth. Fall use occurs after most vegetation species have completed their growth cycle and are dormant. This schedule is used primarily within seedings of nonnative perennial bunchgrass to maintain productivity and availability of species adapted to grazing use.