
RANGELAND

Abstract: Rangeland management includes the production of vegetation for the protection of the watershed to produce high-quality water, provide stability to the soil, produce a wide variety of plants for the enjoyment and use of visitors and provide habitat and food for numerous kinds of wild animals, birds, insects, and fish, as well as forage (food) for livestock. The livestock grazing program is managed primarily through activities such as controlling livestock numbers and distribution; vegetation treatment by mechanical practices, prescribed fire and chemicals; grazing allotment planning and permit administration; and implementation of livestock grazing systems. Local ranchers rely on the grazing opportunity, especially on the Grassland, to support their operations. Part of the revenue collected through grazing fees is returned to the local area to support schools and roads.

All *Forest Plan* alternatives provide for continued grazing on the National Forests and Grassland. Under Alternatives A, B, C, E, and I livestock grazing will continue at the levels of 17,400 animal unit months (AUMs) on the Forests and 55,560 AUMs on the Grassland. Alternative H reduces the AUMs to 8,200 on the Forests and 54,630 on the Grassland. In Alternatives B, E, and H, 75 vacant allotments will be closed to livestock grazing and in Alternatives A, C, and I the 41 vacant allotments will remain open to livestock grazing and 34 will be closed. Restocking the vacant allotments in Alternatives A, C, and I will be on a case-by-case basis.

INTRODUCTION

Rangeland is land on which the native vegetation is predominantly grasses, grass-like plants, forbs, or shrubs. Rangelands include natural grasslands, like the Pawnee National Grassland, shrublands, alpine communities, upland meadows, open-canopy forests, or even essentially closed-canopy forests, so long as they produce low-growing vegetation that is available to grazing animals. Well-managed rangelands provide forage and cover for wildlife and domestic livestock, in addition to high-quality water and recreational opportunities.

LEGAL AND ADMINISTRATIVE FRAMEWORK

The Secretary of Agriculture sets forth responsibilities mandated by statutory authority through Departmental regulations and memorandums. Policy relating to range resources and coordination of range activities of the USDA Forest Service is included in the following:

Secretary's Administrative Order of August 1963, Administration of Lands under Title III of the Bankhead-Jones Farm Tenant Act; Establishment of National Grasslands.

Departmental Regulation, Number 9500-5, dated December 15, 1983: Subject: Policy on Range.

Pursuant to regulations issued by the Secretary of Agriculture, the Chief of the Forest Service is authorized to develop, administer, and protect range resources, and permit and regulate grazing use of all kinds and classes of livestock on all National Forest System lands and on other lands under Forest Service control.

Forest Service policy is to authorize all livestock grazing and other livestock use on lands under Forest Service administration or control by written grazing permit or agreement. On the Arapaho and Roosevelt National Forests a term grazing permit is a document used to authorize individuals, partnerships, or corporations to graze livestock. The permit is issued for a period of ten years. On the Pawnee National Grassland, a grazing agreement is the document authorizing eligible associations, organized under state law, to graze livestock. Grazing agreements are issued for ten years and include provisions for the associations to issue and administer grazing permits to its members.

Three key elements affecting management of the rangeland are:

- level of livestock grazing on rangelands
- condition of rangelands
- economics of livestock grazing

AFFECTED ENVIRONMENT

THE ARAPAHO AND ROOSEVELT NATIONAL FORESTS

Livestock grazing has occurred on the Forest since the Forest existed. In the very early days, grazing occurred on 127 allotments, on 935,827 acres of NFS lands. There are approximately 353,222 acres that were apparently not grazed, or there are no records of grazing. Depending on the elevation of an allotment the grazing season started as early as mid May and ended in October. Approximately 32,900 animal unit months (AUMs) were permitted. The private lands within the allotments were owned or controlled by the grazing permit holder. As population grew on the Front Range, many of the ranchers got out of the livestock business, sold their property, and waived their grazing permits back to the Forest Service. By the late 1950s approximately 50 of the 127 allotments became vacant. In 1984 when the first Forest Plan was completed there were 62 vacant allotments and 65 allotments open for grazing.

The demand trend for livestock grazing on the ARNF appears to be downward. Since the 1984 *Forest Plan* was written another 13 allotments have become vacant. As of 1996 there are 53 allotments open for grazing and 74 allotments vacant.

Current livestock grazing occurs on 51 allotments, on 49,124 acres of NFS lands. Approximately 5,100 cattle belonging to 45 permittees are grazed annually. Grazing seasons start as early as June 1 or as late as July 30 and end in mid October. Approximately 17,400 AUMs are permitted each year.

Livestock Grazing Suitability

The *Forest and Rangeland Renewable Resources Planning Act of 1974* (section 6, (g) (2) (a)) specified that the Secretary of Agriculture was to promulgate regulations that set out the process for the development and revision of land management plans which would require the identification of the suitability of lands for resource management.

The Secretary's regulation 36 CFR 219.20 "Grazing Resource" specifies that "In forest planning, suitability and potential capability of National Forest System lands for producing forage for grazing animals and for providing habitat for indicator species shall be determined as provided in paragraphs (a) and (b) of this section. Lands so identified shall be managed in accordance with direction established in forest plans."

To comply with law and regulation in planning for the revised *Forest Plan* (1997) the Forest first examined the potential capability of National Forest System lands for producing forage, and second determined which of those potentially capable lands would be suitable for livestock use, under 36 CFR 219.20.

Capability is identified as areas on the Forests and Grassland with physical and biological characteristics conducive to grazing (areas producing forage). Criteria used to identify areas as *not* capable of supporting grazing were slopes greater than 40%, severely erodible soils, forage production of less than 200 pounds per acre, water bodies, rock, roads, cliffs, and limited water. The results showed 305,187 acres capable for grazing and 983,862 acres not capable.

Under 36 CFR 219.20, suitable National Forest System lands on the Forests and Grassland were classified as being suitable or unsuitable for grazing and browsing. The suitability analysis identified areas where grazing is appropriate considering rangeland conditions and other uses or values of the area. The analysis also identified areas where grazing is not appropriate.

The following criteria were used to identify areas unsuitable for livestock grazing: Fenced developed sites, highway rights of way, Research Natural Areas, Experimental Forests, municipal watersheds, critical habitat for threatened and endangered species, intermix of lands, designated scenic sites, or areas where grazing is not compatible with other objectives.

Suitable lands for livestock grazing have been identified across the Forests and Grassland as those lands capable of supporting grazing on a sustained basis. The total acres of these lands is identified in the Environmental Consequences section in Table 3.90.

The Forest Service is continuing range allotment analysis to determine rangeland conditions. Table 3.88 displays the status of rangeland conditions.

Table 3.88 Conditions on Rangelands Suitable for Livestock Grazing, ARNF

Status	Rangeland
Acres meeting existing <i>Forest Plan</i> objectives	55,416
Acres moving toward existing <i>Forest Plan</i> objectives	5,337
Acres not meeting existing <i>Forest Plan</i> objectives	1,900
Acres undetermined	0
Total	62,653

THE PAWNEE NATIONAL GRASSLAND

The Pawnee National Grassland contains 193,060 acres of federal land. With the exception of approximately 556 acres all of the Grassland is suitable and permitted for livestock grazing. Approximately 8,200 cattle are permitted to graze on the Grassland on 155 grazing allotments. The Grassland has two grazing associations and eleven individual term grazing permits. The associations are issued a grazing agreement to permit livestock grazing for large areas of the Grassland. One agreement for the west side is for 98,958 acres with 58 allotments, and the other agreement on the east side is for 90,672 acres with 81 allotments. The associations issue grazing permits to their members. This provides for greater flexibility in managing allotments. Permits issued to individuals by a term grazing permit are for the isolated federal lands that range from 20 to 160 acres. Approximately 55,560 animal unit months are permitted each year, and there are no vacant allotments.

Livestock grazing is permitted in both summer and winter. The normal summer grazing season is May 15 through October 15. Winter grazing occurs outside these dates.

Table 3.89 Conditions on Rangelands Suitable for Livestock Grazing, PNG

Status	Rangeland
Acres meeting existing <i>Forest Plan</i> objectives	175,901
Acres moving toward existing <i>Forest Plan</i> Objectives	2,688
Acres not meeting existing <i>Forest Plan</i> Objectives	0
Acres undetermined	13,965
Total	192,504

EXOTIC PLANTS AND NOXIOUS WEEDS ON THE FORESTS AND GRASSLAND

Noxious weeds are nonnative plants that aggressively invade and are detrimental to native plant communities. In their native environments these plants are kept in check by natural predators and enemies such as insects or diseases. In North America, however, these natural checks are absent, allowing noxious weeds to become major economic and environmental threats.

Noxious weeds pose a serious threat to the diversity, integrity, and health of plant communities. Although there has been no comprehensive survey to date to definitively state how many acres are infested with noxious weeds on the ARNF-PNG, a tentative number is 3,900 acres. Many of these acres are along roadsides, as road maintenance and vehicle traffic provide an ideal means for noxious weeds to spread. In many instances, noxious weeds have become established along roadsides, and then spread widely along a travel corridor. The rapid spread of leafy spurge and dalmatian toadflax along Highway 14 in the Poudre Canyon, the explosive growth of diffuse knapweed along state Highway 119 in Boulder Canyon, and the relentless spread of Canada and musk thistle along Highway 40 and the Berthoud Pass area are but a few examples. Areas that generally are problems include: trailheads, trails, disturbed areas, campgrounds, and overgrazed land. One of the difficulties encountered with noxious weeds, however, is the fact that they are quite capable of becoming established in pristine areas as well, and that they have an incredible ability to spread over wide geographic areas. Some noxious weeds are limited by their biology to specific areas (purple loosestrife invades riparian areas but not upland), but most are at such a competitive advantage over native plant species that the exact limits to each species are not known. Elevation, precipitation, and soil limits have not been established for most noxious weed species.

There are numerous species of noxious weeds present on the Forests and Grassland. A list of the known species includes: Canada thistle (*Cirsium arvense*), bull thistle (*Cirsium vulgare*), musk thistle (*Carduus nutans*), Russian thistle (*Salsola iberica*), diffuse knapweed (*Centaurea diffusa*), spotted knapweed (*Centaurea maculosa*), Russian knapweed (*Centaurea repens*), yellow starthistle (*Centaurea solstitialis*), black henbane (*Hyoscyamus niger*), common teasel (*Dipsacus sylvestris*), Russian-olive (*Elaeagnus angustifolia*), leafy spurge (*Euphorbia esula*), cheat grass

(*Bromus tectorum*), dalmatian toadflax (*Linaria dalmatica*), yellow toadflax (*Linaria vulgaris*), puncturevine (*Tribulus terrestris* L.), field bindweed (*Convolvulus arvensis*) and kochia (*Kochia scoparia*).

Plants on the Forests and Grassland that are considered weeds (native plants that can be undesirable, depending on the site), but not noxious weeds, include: poison ivy (*Toxicodendron rydbergii*), Platte thistle (*Cirsium conescens*), lupine (*Lupinus wyethii*), locoweed (*Oxytropis sericea*), Geyer larkspur (*Delphinium geyeri*), low larkspur (*Delphinium nuttallianum*) and tall larkspur (*Delphinium occidentale*).

Treatment of noxious weeds on the Forests and Grassland is based on the concept of integrated weed management (IWM). Given the tenacity of noxious weeds, it is essential to take a longterm view when treating them. It is reasonable to expect that, if unchecked, the noxious weeds present on Forests and Grassland acres will increase annually at a rate of between 10 and 15 percent. This is based on the experiences of local weed managers, and the history of weed control in Montana and the Dakotas. The goal of IWM is not the total eradication of noxious weed species. It recognizes the futility of such an endeavor. Instead, IWM emphasizes the successful longterm management of noxious weeds, relying on a combination of biological, chemical, cultural, and physical methods. This allows land managers the flexibility to treat on a more site-specific basis, and to use the most effective and reasonable methods.

RESOURCE PROTECTION MEASURES

Grazing activities must comply with laws, regulations, and *Forest Plan* standards and guidelines. These standards and guidelines are designed to maintain and improve conditions on the rangelands of the Forest. Livestock and wild herbivore allowable-forage-use levels have been set as guidelines on a forestwide basis for key species. Consideration has been given to areas both in satisfactory or unsatisfactory condition. Since proper grazing depends on the species of vegetation present, the landform, condition trend, soil concerns, and water quality needs, the season, and the intensity of grazing, are all specified within allotment management plans on a site-specific basis. When utilization exceeds the levels set, either in the *Forest Plan* or in allotment management plans, livestock are to be removed from the range.

ENVIRONMENTAL CONSEQUENCES

EFFECTS ON RANGELAND FROM LIVESTOCK GRAZING

Arapaho and Roosevelt National Forests

Under Alternatives A, C, and I livestock grazing will continue at 17,400 AUMs on currently stocked allotments. Grazing can occur on 41 vacant allotments with 8,033 AUMs but an environmental assessment must be prepared before restocking these allotments. The remaining 34 allotments will be closed to grazing. Under Alternatives B and E grazing will continue on the 51 currently stocked allotments with 17,400 AUMs. The 75 vacant allotments will be closed to

livestock grazing, but recreational livestock grazing would still be allowed. Under Alternative H, livestock grazing will be reduced on the 51 allotments to approximately 8,200 AUMs, and the 75 vacant allotments will be closed to grazing. Rangeland vegetation which does not meet *Forest Plan* objectives will meet or move toward meeting *Plan* objectives within the planning period as standards and guidelines are applied to grazing. Administration costs will be higher in Alternatives A, C and I because of maintaining records on vacant allotments and the possibility of restocking vacant allotments.

Pawnee National Grassland

Under Alternatives A, C, and I, livestock grazing will continue at 55,560 AUMs. Under Alternative H livestock grazing will be approximately 54,630 AUMs with the possibility of further reductions as site specific analysis is completed to comply with the Core Area management area direction. Slight reductions will occur in Alternatives B and E.

Table 3.90 Suitable Acres/AUMs by Alternative

Unit	Alternative					
	A	B	C	E	H	I
ARNF						
Suitable Acres	91,572	62,653	91,572	62,653	48,550	105,800
AUMs	25,433	17,400	25,433	17,400	8,200	30,400
PNG						
Suitable Acres	192,504	192,504	192,504	192,504	191,984	192,504
AUMs	55,560	55,380	55,560	55,507	54,630	55,560

Table 3.91 Allotments Open, Vacant, or Closed by Alternative

Unit	Alternative					
	A	B	C	E	H	I
ARNF						
Open	51	51	51	51	51	51
Vacant	41		41			41
Closed	34	75	34	75	75	34

Unit	Alternative					
	A	B	C	E	H	I
PNG						
Open	154	154	154	154	154	154
Closed	0	0	0	0	0	0

EFFECTS ON RANGELAND FROM RECREATION MANAGEMENT

Arapahoe and Roosevelt National Forests

Dispersed recreation use could increase in all alternatives. Increased visitor use could potentially increase vandalism of range improvements thus increasing operational costs to both permittee and the Forest Service. Conflict for space between recreationists and livestock would likely increase. Alternative E would increase acreages devoted to dispersed recreation and would have potential to reduce livestock use or restrict livestock grazing during periods of high recreation use (holidays, high-use seasons, etc.).

Pawnee National Grassland

The effects will be similar as on the Forests with the following differences: The Grassland has many more improvements than the Forests and because improvements are more visible to the public, vandalism could be greater. Livestock grazing levels will remain the same during high recreation use periods.

EFFECTS ON RANGELAND FROM WILDERNESS MANAGEMENT

Forests and Grasslands

In Alternative B the Forests will recommend to Congress the additional designation of 8,810 acres of wilderness, and in Alternative H 259,363 acres will be recommended for the ARNF. While livestock grazing is an allowable practice within wilderness, it creates conflict with individuals who want a livestock-free wilderness experience. Management of livestock within wilderness will emphasize a lighter touch on the land. This has the potential over time to reduce livestock numbers. In Alternative B only portions of two allotments will be affected and in Alternative H portions of nine allotments will be affected. Proposed additions to wilderness areas may increase the cost of livestock management. There are no wilderness areas existing or proposed under any alternative for the Grassland.

EFFECTS ON RANGELAND FROM WILD AND SCENIC RIVERS MANAGEMENT

Forests and Grassland

Under all alternatives, livestock grazing within designated wild and scenic river areas of the ARNF will be managed to retain the natural appearance. Riparian pastures and adjacent uplands may not be available for grazing if this is not achievable. Reduced livestock grazing could result. There are no wild and scenic rivers on the Grassland and hence there would be no effects on range lands.

EFFECTS ON RANGELAND FROM WILDLIFE HABITAT MANAGEMENT

Under all alternatives, wildlife and fish habitat management decisions could result in reduced levels of livestock grazing. In all prescriptions, except management area 6.6, wildlife/livestock conflicts will be resolved in favor of wildlife.

EFFECTS ON RANGELAND FROM THREATENED, ENDANGERED AND SENSITIVE SPECIES MANAGEMENT

Forests and Grassland

Under all alternatives, range management objectives will be formulated to protect or enhance threatened, endangered and sensitive species. The Forests and Grassland have three threatened or endangered species of plants and 16 sensitive plants on the Rocky Mountain Region's list. There are 14 threatened and endangered animal species and 49 sensitive animal species on the Forests and Grassland. This may restrict grazing to particular seasons in some areas, limit the level of use to certain species in others, and possibly increase the management and development costs on some livestock ranges through specialized placement and construction methods for range improvements.

EFFECTS ON RANGELAND FROM TIMBER MANAGEMENT

Forests and Grassland

Timber harvest in most cases provides increased forage, which can be made available for livestock and wildlife grazing. The total numbers of AUMs will not increase in any alternative, but rather increased forage will be available locally. This has a beneficial effect of reducing grazing pressure on other ranges. In all alternatives where harvest techniques open the overstory, an increase in the herbaceous and shrub component is expected to occur. These same areas now serve as natural barriers in some grazing plans. Opening the forest and creating continuous forage may result in the need for additional fences to manage where and how livestock use the Forests. There would be no effect on the Pawnee National Grassland, which contains no timber.

EFFECTS ON RANGELAND FROM RIPARIAN AND WETLAND MANAGEMENT

Forests and Grassland

Under all alternatives, management and protection of riparian areas and wetlands are emphasized. Stubble height that indicates both satisfactory and unsatisfactory conditions is used as a forestwide guideline. Implementation of stubble height guidelines may require changes in management and new range improvement construction in order to meet these requirements. This may require changes in present livestock grazing practices on some allotments. More intensive grazing systems may be developed to provide riparian vegetation the rest from grazing needed to complete plant growth cycles. Strategies that restrict grazing to particular times of the year or restrict levels of use may need to be developed at the project level. Fences may need to be constructed to create riparian pastures or to simply create new pastures to provide for either deferment or rest for riparian areas. This will result in beneficial effects on all species of both plants and animals dependent on riparian systems. Additionally, it is expected that riparian and wetland management requirements will result in the improvement and protection of streambank stability, an increase in species diversity, an increase in vegetative production, the maintenance of water quality, and improvement in sustained flow of water. Criteria will be designed at the project level to protect riparian values specific to individual drainages, stream reaches, or sites. Range and wildlife watering facilities may be built on upland sites to draw livestock and big game away from riparian areas. In some cases, production of livestock will be reduced where compliance with plans to enhance or protect riparian areas is not achieved. Costs for management and development will increase on some allotments.

EFFECTS ON RANGELAND FROM SOIL, WATER AND AIR-QUALITY MANAGEMENT

Forests and Grassland

Under all alternatives, proper grazing management will maintain soil, water and air-quality, with protective criteria designed at the project level. Increased forage from soil and water management will not increase AUMs in any alternative.

EFFECTS ON RANGELAND FROM ROADS

Arapaho and Roosevelt National Forests

Cleared road rights-of-way remove land from forage production; this loss varies slightly among the alternatives but is not significant enough to reduce the AUMs. Public use of roads, particularly in allotments with intensive grazing systems, disturbs livestock, results in increased risk of gates between grazing units being left open, and tends to disrupt the proper utilization of forage. Roads can also provide opportunities for more efficient livestock management through both trucking and herding.

Pawnee National Grassland

Public use of roads in allotments with intensive grazing systems disturbs livestock, results in increased risk of gates between grazing units being left open, and tends to disrupt the proper utilization of forage.

EFFECTS ON RANGELAND FROM HERITAGE RESOURCES MANAGEMENT

Forests and Grassland

Under any alternative, heritage resource management could affect the location of range improvements. Management and development costs could increase.

EFFECTS ON RANGELAND FROM PEST MANAGEMENT

Forests and Grassland

Pest control may benefit rangeland in all alternatives. Control of noxious weeds and grasshopper infestations, for example, can improve rangeland conditions.

EFFECTS ON RANGELAND FROM FIRE MANAGEMENT

Forests and Grassland

In all alternatives, wildfire can destroy range improvements. Fire may destroy range vegetation in the short term; however, most of the time wildfire is beneficial to rangeland. Fire can enhance the sprouting and regrowth of vegetation. Fire will also invigorate those plants not killed, thereby attracting livestock and wildlife to them. This may eliminate grazing pressure on adjacent areas. Recent burns may need to be protected from livestock grazing while vegetation is recovering. Fire may add to the cost of livestock management for a period of time; costs will increase where structural improvements have been destroyed. Range improvements that may be affected by fire include fences, drinkers (metal, wood, rubber, or plastic) and shallow pipelines that serve them.

EFFECTS ON RANGELAND FROM RESEARCH NATURAL AREAS

Arapaho and Roosevelt National Forests

There are no stocked allotments within Research Natural Areas and there would thus be no effect on the rangeland.

Pawnee National Grassland

Research Natural Areas will be managed to standards of the Research Natural Area Management Area Prescription. Where RNAs exist, the numbers of livestock permitted will be removed from the Association's grazing agreement. However, grazing may occur when it is used to

approximate a natural regime for maintaining the native vegetation. In Alternative A there would be no effect. In Alternatives C, E, and I there would be a reduction of 271 AUMs. In Alternative B there would be a reduction of 180 AUMs and in Alternative H a reduction of 915 AUMs.