5-1969

An Analysis of Forest Service Grazing Statistics and a Case Study of Public Grazing in Rich County, Utah

Barton F. Bailey
Utah State University

AN ANALYSIS OF FOREST SERVICE GRAZING STATISTICS AND A CASE STUDY OF PUBLIC GRAZING IN RICH COUNTY, UTAH

by

Barton F. Bailey

A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

Agricultural Economics

UTAH STATE UNIVERSITY
Logan, Utah

1969

PREFACE

This thesis is divided into two sections. The first section is an analysis of Forest Service grazing statistics and the second section is a case study of public land grazing in Rich County, Utah.

I wish to express my appreciation to the Department of Agricultural Economics and to the United States Forest Service for making it possible for me to do research on a ranch and rangeland problem.

My sincere thanks goes to Dr. Darwin B. Nielsen for his continual help and encouragement throughout this study. His advice and friendship, along with his ability to see existing problems, made his presence enjoyable and sincerely appreciated.

Special thanks are expressed to the ranchers of Rich County, Utah, who gave of their time and consideration in helping get the basic data needed for the improvement practice study.

I am especially grateful to Pat, my wife, for her support and constant encouragement throughout my graduate studies. I also wish to express thanks to my father and mother for their encouragement to continue my education, and their financial and moral support throughout my years in college.

Barton F. Bailey

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

LIST OF TABLES

LIST OF TABLES (Continued)

ABSTRACT

An Analysis of Forest Service Grazing Statistics

And a Case Study of Public Grazing

In Rich County, Utah

by

Barton F. Bailey, Master of Science

Utah State University, 1968

Major Professor: Dr. Darwin B. Nielsen
Department: Agricultural Economics

Forest Service grazing permits for cattle and sheep were analyzed. A livestock and land resource summary was completed for each non-temporary permit reported on the 98 forests in the twelve western states.

The economic feasibility of private rangeland improvements to offset public land grazing in Rich County, Utah, was analyzed in the second section of this thesis. The internal rate of return for various projects was computed. The internal rate of return was used as an indicator of the economic feasibility to ranchers. These estimates were made on a county basis and do not apply to any particular ranch situation.

(125 pages)

SECTION I

AN ANALYSIS OF FOREST SERVICE GRAZING STATISTICS

INTRODUCTION

Sixty-five percent of the land area of western United States (excluding Hawaii) is owned by the federal government. Ninety-five percent of this vast public domain is controlled and managed by two agencies--the Department of Agriculture with 24 percent and the Department of Interior with 71 percent. The United States Forest Service administeres over 99 percent of the land managed by the Department of Agriculture with 86 percent of this land located in twelve western states. The Bureau of Land Management administers over 88 percent of the land managed by the Department of Interior with practically all of it in the western states (Caton, n. d.).

Well before 1900, settlement had extended into nearly every section of the west, and livestock grazing industry had pushed into almost every corner of the land. With no control or management of the federal lands, it was only natural that the ranchers should graze their herds and flocks upon the land. Excessive use and improper seasonal use inevitably were widespread since no control could be exercised by the public agencies. Many ranchers used the land in ways they knew were not proper because they were aware that if they did not, someone else would. It is also true that knowledge about proper use of grazing land use was less common in those days, and often the ill effects of improper grazing practices on the forage and soil resource itself were not foreseen (Clawson, 1963).

Most livestockmen believed the public range was so vast and unlimited in forage that grazing could continue indefinitely, at no cost, without destroying the quality or the quantity of the resource. Their beliefs, unfortunately, did not become reality. Livestock over-grazed the land until watersheds were destroyed, dust bowls developed in some areas, and numerous floods occurred in other areas. Much of the public domain deteriorated; what had taken nature centuries to develop was being destroyed needlessly in those few decades.

It became apparent in the late 1800's that conservation efforts were needed to preserve the public domain. In 1897 the President was given power to set aside public domain as Forest Reserves (Parkins, 1938). The Forest Reserve Act of 1897 officially gave the federal government power to administer policies concerning livestock grazing on public domain; and in 1906, under the jurisdiction of the Department of Agriculture, grazing fees were charged for the first time (Dutton, 1953).

Custodial management of forest land was begun in 1905. The Forest Service immediately began to extend to the national forests the best management possible with the technical knowledge and appropriations it had at its disposal. Efforts were centered on fire control and prevention of trespass. Positive measures for proper use of land for grazing, recreation, and other uses were also established. Many of the problems of this era on other public lands were solved by the Taylor Grazing Act of 1934, which created grazing districts within which grazing would be permitted

only under management and control. Because of the depression and the war, the period from 1934-1950 offered little as far as solving the problem confronting the Forest Service and Bureau of Land Management. During the 1950's "intensive management" of the national forests was begun (Clawson, 1963). Numerous problems were solved during this era, but many problems still exist and their economic solutions are not easily obtained.

In 1966, the United States Forest Service and the Bureau of Land Management, in cooperation with the Statistical Reporting Services, completed a major data necessary to estimate grazing values on some 98 National Forests, 19 National Grasslands, and 55 BLM grazing districts in the western states, as a basis for evaluating current fee structures. Grazing permit data for each Forest was compiled to provide information needed in sampling ranchers whose livestock grazed these lands. These data have been collected by the Forest Service every ten years since the permit and grazing fee system was initiated in 1906, as a part of their record-keeping procedures for non-temporary permits.

Forest Service records were analyzed in this study. The purpose of the first section of this thesis is to present a complete land and livestock resource summary for cattle and sheep permits on the 98 forests in the six regions of the western United States.

Description of the Data

All data presented in this study were obtained from the Forest Service under a cooperative agreement with the Department of Agricultural Economics, Utah State University. The data were assembled on IBM computer tapes prepared by the Statistical Reporting Service in cooperation with the Forest Service.

Information was collected from the Form A questionnaire (Appendix A). This questionnaire entitled, "Form for Compilation of Permit Data from Forest and Grassland Records," was completed for 18,509 individual permits. Of these, 15,219 were cattle permits, 2,914 were sheep permits and 376 were horse permits (Table 1).

To clarify a common misunderstanding, it is important that we differentiate between the permits reported and the number of permittees reporting. In the past many have believed that the number of permits issued was synonymous with the number of permittees grazing livestock. This is not so.

Analysis of the data showed that some ranchers owned more than one grazing permit; therefore, some double-counting did occur in the 18,509 permits reported. To establish a realistic estimate of the number of permittees reporting, commensurate property data were used. [1]

---

[1] Property is considered commensurate only when it is a recognized livestock operating base and is complementary to national forest ranges in rounding out a properly balanced year-long livestock operation.

Table 1. Number of permits and estimated number of permittees, reported by region, 1966[a]

Regions	No. of cattle permits reported	Estimated no. of cattle permittees	No. of sheep permits reported	Estimated no. of sheep permittees	No. of horse permits reported	Estimated no. of horse permittees	Total permits reported region	Est. no. of permittees reported per region
Region 1	2,636	1,792	169	126	112	61	2,917	1,979
Region 2	3,750	2,686	839	472	40	19	4,629	3,177
Region 3	2,412	1,585	156	80	53	25	2,621	1,690
Region 4	4,269	3,721	1,499	709	99	70	5,867	4,500
Region 5	984	556	86	35	62	20	1,132	611
Region 6	1,168	850	165	58	10	6	1,343	914
Totals	15,219	11,190	2,914	1,480	376	201	18,509[b]	12,871[c]

[a]Data collected from Form A, 1966.
[b]Total number of combined permits reported, 1966.
[c]Total estimated number of combined permittees reporting, 1966.

Since each permit holder had to report commensurate property of some type to obtain the non-temporary permit, the highest number of permittees reporting any commensurate land resource, within each forest, was used as an estimate of number of permittees. For example, suppose a forest has 200 non-temporary permits. Commensurate property reported shows 185 permittees own cultivated land, 40 own improved pasture, 160 own summer range, 55 own winter range, 140 own spring-fall range, and 18 own yearlong range. Using this hypothetical example it would be assumed that there were 185 permittees owning the 200 permits. A study of the data showed that when a rancher owned more than one permit he only reported his commensurate property once. Therefore, the above procedure is the best way, given the data available, to estimate the number of permittees. It is desirable to have an estimate of the number of people (permittees) who have Forest Service grazing permits. An estimated 12,871 permittees own the 18,509 permits based on the assumptions described above.

Objective of this Section

Analyze and present the livestock and land resource data collected from the Form A questionnaire in 1966.

To accomplish the objective, an analysis of the data from the 18,509 individual permits collected by the Forest Service in 1966 was made. Permit data were available for cattle, sheep, and horses, however, because

of the limited number of horse permits reported, they were not included in the analysis. The information was sub-divided into four categories: (1) public permit data, (2) livestock statistics, (3) commensurate property inventory, and (4) leased land inventory. The analysis was made by forests within regions, and averages were computed where applicable, to give a somewhat realistic summary of individual resources reported (Appendix B and C).

NON-TEMPORARY GRAZING PERMITS

There are two major grazing permits being issued to eligible ranchers by the Forest Service. They are: (1) non-temporary or term permits, and (2) temporary permits. Non-temporary permits are issued to eligible ranchers for a ten-year period and temporary permits are issued to eligible ranchers for a one-year period. Many differences exist between these two permit types. The major one is the commensurate property requirement must be met to obtain a non-temporary permit that does not have to be met to obtain a temporary permit. This study deals only with non-temporary permits, therefore, the requirements of obtaining a non-temporary permit will be discussed in detail.

To obtain a non-temporary permit there are four basic regulations that must be satisfied. They are:

1. Preference—It may be acquired by:

    a. Prior use of certain lands before inclusion of such lands in the National Forest. After creation of a forest, only those individuals who submit proof that they used the forest range two consecutive years immediately preceding the year in which the new forest was established, can be assigned a preference. In no case can the number of stock in the permit be increased from the average number grazed on the range prior to its becoming a forest.
    b. Renewal of a permit formerly held by a co-partnership or corporation to each individual member for a number of livestock equal to his share in the original permit, or pooling of preferences.

c. Purchase of a permittee's livestock or ranch, or both under circumstances justifying a renewal of preference.
d. Inheritance of a permittee's livestock, or ranch, or both under circumstances justifying a renewal of preference.
e. Regular use of forest range under temporary permit for five consecutive years, and ownership of commensurate ranch property.
f. Restoration of preferences reduced for range protection.
g. Increase in existing preference because of increased grazing capacity resulting from development work by the permittee.

2. Ownership—Both the livestock that graze forest ranges and the commensurate ranch property must be owned by the permit applicant.

3. Dependency—Property is recognized as dependent when there is need for the forest range to round out a year-round operation and to obtain proper and practicable use of commensurate property. If a ranch contains all the range and hay land that are required to support the livestock, then no need for forest ranges exists and the land cannot be said to be dependent.

4. Commensurability—Property will qualify as commensurate only when it is a recognized livestock operating base and is complementary to national forest ranges in rounding out a properly balanced year-long livestock operation (Gardner, 1963)

Non-temporary permits issued within an area usually exceeds the number of temporary permits issued. There are many reasons for this but the main one is the time duration of the non-temporary permit. The non-temporary permit is issued for a ten-year period with the privilege of renewal. Because of this extended time period many livestockmen have developed their range livestock enterprise using the non-temporary permit as an essential supplier of seasonal forage.

Commensurate Property Requirements

The United States Forest Service Manual states that for a permittee to meet commensurability requirements he "must be able to fully care for the permitted livestock during that time such livestock are not on National Forest Service lands." (Forest Service Manual, 1960)

Commensurate property requirements are decided upon by each Regional Forester. That is, he has the power to establish the minimum amount of property that must be owned in terms of the percentage of the total feed needed. Within the minimum established by the Regional Forester, each Forest Supervisor will establish ownership requirements for his unit. If conditions vary in the unit, ownership requirements must be established locality by locality, after he has conferred with local users. This is the reason why commensurate property holdings are not uniform throughout the west. This also explains why ranchers within an immediate area can have different commensurate property requirements.

Commensurate property requirements may be met by owning or leasing land resources. Leasing of land is a common practice in the west. However, it creates problems that must be given careful consideration. A decision must be reached as to just how large the ownership of land should be in relation to the additional leased and other land.

The ratio between leased and owned land should not be so low as to allow small outfits to gain permits on the basis of an extremely small ownership of land. The ratio should not, however, be so large as to encourage over-investment in sub-marginal or other lands not actually needed in the operation (Forest Service Manual, 1960).

A guideline has been established by the Forest Service concerning commensurate property requirements and it summarizes the problem completely. The guideline for Regional Foresters and Forest Supervisors is, "that commensurability requirements within a certain locality should be based on the proper grazing capacities and reasonable feeding standards of the land or resources owned or leased by the permittee." (Forest Service Manual, 1960).

THE ANALYSIS

The Forest Service is currently administrator of nine geographical forest regions located in the continental United States. Six of these regions are located in the 12 western states, where over 95 percent of the national forest lands are used for livestock grazing, as well as other uses. The six regions include 98 forests with some 12,000 permittees. A descriptive analysis of these data would be voluminous; therefore, the analysis of the data presented in the body of this thesis is a descriptive summary on a regional basis. Anyone desiring to make comparisons on a forest basis is referred to Appendix B and C.

The six regions were established using both institutional and physical boundaries, such as, state boundaries, forest locations, and mountain ranges, to aid in regulating and administering policies for livestock grazing and other uses.

Regions vary not only by location, but by climatic conditions, topography, types of forage produced and among other things, the heterogeneity of the ranching enterprises. Since these differences do exist, policies governing use of these lands must be tailored to fit regional or special situations within each area. The following is a brief descriptive analysis of the six forest regions included in this study.

Regional averages of livestock owned, which include livestock permitted on public lands, for cattle and sheep permittees are shown in Table 2. These average figures vary by region; however, they differ considerably more on a forest basis and even more so on a permittee basis. For example, cattle permittees in Region 1 own an average of 256 cattle, but the variation among forests varied from 653 average head of cattle on the Beaverhead National Forest to 58 average head of cattle on the Coeur d'Alene National Forest.

Table 2. Regional averages of livestock owned by cattle and sheep permittees[a]

	Cattle permittees			Sheep permittees		
Regions	Ave.[b] cattle	Ave.[b] sheep	Ave.[b] horses	Ave.[c] cattle	Ave.[c] sheep	Ave.[c] horses
Region 1	256	647	10	594	2756	35
Region 2	242	886	10	219	2431	23
Region 3	178	221	7	89	2009	15
Region 4	178	353	7	251	2190	19
Region 5	431	649	9	735	3883	14
Region 6	303	245	8	299	2454	18

[a]Data collected from Form A, 1966.
[b]Average cattle, sheep and horses owned by cattle permittees.
[c]Average cattle, sheep and horses owned by sheep permittees.

To obtain a non-temporary permit one must own or lease commensurate property. The amount of commensurate property required to acquire a non-temporary permit varies between forests and sometimes within forests. Tables 3 and 4 show the percentage of permittees, in the six regions who reported owning and leasing various types of land resources.

Table 3. Six region summary of cattle and sheep permittee's commensurate

	Percent of permittees owning land resources by type					
Type of permit	Cultivated land	Improved pasture	Summer range	Winter range	Spring-Fall range	Year-long range
Cattle	95.07	60.46	44.13	27.27	47.02	14.23
Sheep	97.16	69.39	46.62	35.54	72.90	9.86

Table 4. Six region summary of cattle and sheep permittee's leased land[a]

	Percent of permittees leasing land resources by type			
Type of permit	Cultivated land	Summer range	Winter range	Spring-Fall range
Cattle	19.04	24.20	11.68	16.53
Sheep	19.86	29.26	27.23	42.09

[a]Data collected from Form A, 1966.

SECTION II

A CASE STUDY OF PUBLIC GRAZING IN RICH COUNTY, UTAH

INTRODUCTION

National Forest System grazing is big business now, and it will continue to be. To some 12,000 farm and ranch families it is vital. Located in more than 600 rural communities, these families own 45 million acres of land and lease another 21 million acres. They own 3.3 million cattle, 4.2 million sheep and 158,000 horses. Permittees own land, livestock, buildings, and other property valued at more than $2 billion, a substantial part of the tax base in ranch country. Small livestock operations are typical. Only 10 percent of the cattle permittees own more than 500 cattle, 70 percent own less than 200, and 29 percent own less than 50 head (Cliff, 1967).

Since 1950 cut-backs in livestock grazing on public lands have been substantial in many areas of the west; small and large ranch enterprises have had to make adjustments in their grazing programs. They have four possible alternatives. They are: (1) lease privately owned grazing resources, (2) improve privately owned grazing lands, (3) sell livestock, and (4) buy more rangeland and hayland. Land prices have increased substantially over the past 15 years which has made land purchases a less attractive alternative and selling of livestock is being done only by a few livestockmen (Nielsen, 1967). Therefore, ranchers are looking to

other methods to increase forage production on their available acres. Alternatives one and two will be considered for this study.

Leasing of private land resources for grazing is a common practice, however, a cut-back of public grazing in a localized area makes leased land an even scarcer commodity. As demand increases for this resource with a relatively fixed supply, the private lease rate goes up. It is apparent, therefore, that the leasing of private land for grazing is a real alternative to public grazing for only a few ranchers. Improvement of private land resources becomes a more economic alternative to ranchers who need additional forage. Unfortunately, it is only being attempted by a few of the ranchers who need it.

Description of the Data

Data for this study were collected by personal interviews with cattle ranchers in Rich County, Utah. A random sample of 20 cattle permit owners was selected from a population of 75 cattle permittees.

Data were collected on livestock type and numbers, grazing patterns of the area and of each rancher, types of land owned and leased and the yields, range improvements completed, costs incurred from such improvements, and expected gains in carrying capacity.

Objectives of the Study

1. Determine whether it is economically possible to offset the loss of Forest Service grazing by improving leased and privately owned land resources in Rich County, Utah.

2. Estimate cost and returns for various improvement practices attempted in the survey area.

To accomplish the first objective a rural community was selected that depended on livestock ranching for its major source of agricultural income and employment. Rich County, Utah, was chosen because it met both of the prerequisites, which is portrayed in the fact that 23 percent of the total employment in Rich County is in the production of cattle (Evans, 1962), and of the basic industries producing income in the county, agriculture accounted for over 47 percent of the total in 1965 (Clements, 1968).

To aid in the analysis of the first objective extensive secondary material was used as a help in many of the decisions presented on range improvement practices and their potential within the area.

The second objective was accomplished by interviewing individual ranch units in Rich County which had maintained usable records on cost and returns from various improvement practices. The Soil Conservation Service and the Bureau of Land Management personnel gave of their time and approved usage of their records on costs and expected returns of all

projects they had completed in the area. Secondary material was also used extensively in solving the problems of objective two.

Review of Literature

According to McConkle and Caton (1962), the largest group of ranch management problems involves balancing seasonal feed resources to the needs of the individual livestock system. In the western United States in 1965, national forests produced grazing for 42 percent of all permittees' cattle and supplied 20 percent of their estimated total forage needs. Forest grazing also provides grazing for 57 percent of all permittees' sheep and supplies 15 percent of their estimated forage needs (Cliff, 1967). Public grazing is a balancing block that some 12,000 forest permittees depend upon for seasonal forage needs. The other important, often over-looked, method of balancing seasonal feed resources is through individual efforts of improving owned and leased land resources.

In the study area, Rich County, Utah, only 6.41 percent of the total owned land in the sample had been improved by any method (Table 5). Nielsen (1967) reported that many acres of rangeland in Utah are not producing forage at levels even approaching their economic or physical potential. About 15 million acres of deteriorated rangeland in Utah, according to Cook and Stoddard (1964), is now producing at least 1,000 pounds less forage per acre than it is capable of doing. It would appear

Table 5. Land inventory of ranchers sampled in Rich County, Utah, 1968

Land classification	Total acres owned[a]	Average acres owned	Total acres owned improved	Total owned land improved	Total acres leased[b]	Average acres leased	Total acres leased improved	Percent leased land improved
Rangeland	10,685	534	320	2.99	1,266	63	0	0
Irrigated pasture	820	41	0	0.00	35	2	0	0
Meadowland	4,206	210	813	19.33	753	38	0	0
Hayland	919	46	0	0.00	380	19	0	0
Grain crops	1,050	52	0	0.00	392	20	0	0
Total	17,680		1,133	6.41	2,826		0	0

[a]Total acres owned by ranchers sampled.
[b]Total acres leased by ranchers sampled.

that Utah has considerable opportunities for rangeland improvement.

Ranchers in the west have begun to realize the importance of range improvements for the purpose of providing and stabilizing their base ranch unit forage needs. Vallentine (1963) reported that range improvements typically give high returns on investment if carefully planned and properly applied. However, it should be pointed out that what is profitable for one rancher may not be profitable for another. Each rancher must, therefore, evaluate his enterprise needs completely before carrying out extensive range improvements. More forage resulting from range improvements may require a series of adjustments, including additional livestock, improved management, more and better fences, additional stock water, more labor, and more capital. It is important, therefore, that each rancher consider all possible costs before investing in range improvement programs and not let the desire for additional forage be his sole objective (McCorkle and Caton, 1962).

Description of the Survey Area

Rich County is located in the extreme northeastern corner of Utah and is bounded on the north by Idaho, on the east by Wyoming, and on the south and west by the Wasatch mountain range. The majority of the land area drains into the Bear River with the exception of the northern part which drains directly into Bear Lake.

Rich County has a land area of approximately 655,000 acres. Of these, 222,500 acres are federally owned and 431,581 acres are in private ownership with the remainder in water surface, state holdings, and town sites. Of the federal lands in Rich County, about 25 percent or 54,840 acres are in National Forests and the remainder or 167,660 acres are Bureau of Land Management administered.

Rich County is generally rugged, especially the western section of the county. Here the elevation in many places is nearly 9,000 feet and the terrain is extremely rugged. Much of it is classified unusable except for limited grazing and aesthetic value. The foothill lands within the county are characterized by low rolling hills which are chiefly used for cultivated crops, rangeland, and some dry-land farming. In the lower-lying meadowland, mosquitoes are a serious problem. They are so abundant that many of the ranchers interviewed reported that the mosquitoes affected the gains of cattle left to graze the meadows during the summer. Therefore, mosquito control is an important consideration which might affect ranchers' decisions regarding summer grazing of meadowlands and irrigated pasture.

Rich County is characterized by a short growing season and extreme variations in temperature. For example, Woodruff, located in the southern end of the county, reported a frost free growing season of 20.7 days and Laketown, in the north, reported a safe growing season of 62.8 days. This

limits farm production, according to Stoddart (1940), to hardy cereals and hay. It is for these reasons that the livestock industry exists within the county and crop production is only attempted on a minor scale. Woodruff's lowest temperature of -50 degrees is 11 degrees lower than that reported for any other station in Utah. This certainly indicates that lower temperatures may be a factor to consider in planning a livestock enterprise within the county (Stoddart, 1940).

Another problem facing ranchers of Rich County is water shortage. The area near Woodruff is periodically short of water for irrigation purposes. Two things contribute to this: (1) lack of suitable storage facilities and (2) limited watershed to produce and retain water. Irrigation must be done in June as the snow melts or it is not done at all. Ranchers interviewed in the southern end of the valley reported it was uneconomical for them to improve their land until dams or storage facilities were provided.

The remaining problem area of Rich County, discussed in this thesis, is the meadowland bordering the Bear River. Those ranches located near Randolph have no drought problem, in fact, during the late fall, winter, and spring their lands are damaged by the high water table and water cover. Because of this problem ranchers are unable to use these lands for winter feeding after the first spring thaw; and to graze cattle on this land before June destroys the forage. The water cover also prevents high quality forage from growing on these lands. The

forage is used for hay production or grazing. In this area effective drainage is the major limitation facing the livestock industry.

Winter feeding of cattle in Rich County is a six-month process most years. Cattle come off the public lands during late September or early October and graze aftermath on meadows, pastures, and alfalfa land for two months. Spring grazing is a scarce commodity because of the severity and length of the winter. Ranchers interviewed reported dry lot feeding cattle until they went on Forest or BLM lands which varied from May 15 to July 1, depending on the year and the agency. Since winter feeding is so important to the year-round ranch operation, the efficient rancher must also be concerned with getting maximum meadow hay and alfalfa production from his land resources. To achieve this improvements must be made on these lands. Fertilization, inter-seeding, and drainage are all possible, however, only fertilization is done in any volume at the present time in the county.

INTERDEPENDENCE OF PRIVATE AND PUBLIC RANGELANDS

In many areas of western United States livestockmen depend upon public grazing for an essential segment of their year-round grazing program. Because of the nature of forage supplied by federal ranges, they provide only seasonal grazing in most instances. Public grazing can be used at certain times of the year only, and usually it is not an easy matter to provide substitute forage for the seasons of the year when use of federal lands is greatest. To curtail or deny use of the federal range to a ranching operation can often mean that the privately owned land resources are much less valuable and perhaps economically worthless in extreme situations (Bromley, 1968).

The dependency of permittees for public grazing resources has kept the demand for public grazing high. Permittees in Rich County often reported that they could effectively run more cattle on national forest if it were possible. Certainly there is a similar, perhaps greater, unmet need among non-permittees.

In Rich County the permittee's dependency for public grazing is noticeable. However, since only cattle permittees were interviewed the total impact is perhaps not portrayed since sheep permittees and their private-public land relationship is not presented.

A livestock inventory was obtained from those interviewed. They reported owning 3,037 head of cattle. Of these, 2,448 were breeding cows, 375 were replacement heifers, and 214 were heifers and steers, with spring calves and bulls not included (Table 6). Cattle permitted to use forest lands totaled 712 head (spring calves not counted) or 23.44 percent of the cattle owned by permittees reporting. All of this forest grazing was during the summer months.

Table 6. Livestock inventory of ranchers sampled, Rich County, Utah, 1968

Livestock classification	Total livestock owned	Average livestock owned	Total livestock allowed on forest land	Total livestock allowed on BLM land
Breeding cows	2,448	112	680	986
Spring calves	2,158	108	612	887
Replacement heifers	375	19	20	52
Heifers & steers	214	12	12	52
Sheep	1,048	52	not reported	not reported

BLM lands total 167,660 acres of land in the county and is an important asset in the livestock enterprises of 103 cattle ranchers within the area. Fifteen of the sample ranchers interviewed owned BLM permits in conjunction with their forest permits. These fifteen ranchers were permitted

to run 1,084 head of cattle on the BLM ranges for late spring and summer grazing. Of the cattle owned, 35.69 percent grazed BLM lands.

To obtain the percentage of cattle owned by permittees interviewed that grazed public lands, the two percentages were added. It was found that 59.13 percent of the cattle owned by those interviewed received a substantial proportion of their summer feed from public owned land resources.

The amount of dependency for public grazing varies considerably among individual permittees. In the sample interviewed the range of dependency for public grazing varied from 29.06 percent to 3.91 percent (Table 7).

The dependency of ranchers for public grazing was more substantial when only the summer grazing portion of the year was considered. In Rich County summer grazing is a four month period, June, July, August, and September. During this period ranchers were from 84.40 percent to 9.39 percent dependent upon Forest lands for their forage needs (Table 7).

Most ranchers interviewed reported that the majority of their summer forage needs were supplied by forest lands. However, they also received additional benefits from these lands. They were able to decrease the demand for forage on their base-ranch unit which allowed meadow and hay production to increase for winter feeding pruposes; and by moving cattle to the higher forest ranges, the mosquito problem that exists on the meadow was partially solved.

Table 7. Public land dependency of ranchers in Rich County, Utah, 1968

Total ranch requirements AUMs[a]	Percent of ranch AUM requirements provided by forest land	
	Annual	Summer
971	3.19	9.39
1,892	23.73	68.97
5,704	6.21	18.75
586	18.94	57.81
1,521	16.57	48.55
3,128	26.50	79.71
1,128	10.90	32.80
4,701	5.46	16.05
2,707	26.19	76.48
2,076	23.12	68.96
2,967	6.71	19.66
234	17.09	52.63
649	10.63	33.82
3,119	27.70	74.29
1,200	9.92	30.05
442	21.04	60.00
1,490	29.06	84.40
3,611	27.11	76.97
1,350	23.26	64.87
944	7.94	21.80

[a]AUM is the amount of feed required to feed one animal unit for one month.

Ranchers in the county and in many areas of the west rely on forest lands for the majority of their summer forage needs. Therefore, any action taken by the Forest Service concerning livestock usage on their land has a considerable effect on each rancher and the local community.

POTENTIAL FOR RANGE AND MEADOW IMPROVEMENTS

Historical records concerning grazing in Rich County are rare, but those available indicate that forage was at one time plentiful. Early Mormon historians reported, "The grass looks like a waving grain field, " and that Randolph, the county seat, is "surrounded by excellent grazing land." (Stoddart, 1940) Most early settlers made no effort to own land and used the free range to supply their forage needs. As the number of settlers grew the amount of forage declined, and like most areas of the west the county was soon overgrazed. The forage resources were destroyed or reduced in productivity both in quality and quantity. Stoddart (1940) reported that the meadows and low-lying hills were over-grazed and that sagebrush became the main cover crop of the area.

The Soil Conservation Service reported in 1966 that there is a great potential for range, pasture, and meadow improvement within the county. They reported 313,787 acres of meadow, pasture, and rangeland owned in the county. Of these, only 489 acres were considered adequately treated, 23 acres were considered not feasible to treat, and 313,275 acres or 97.94 percent of the private land needed some type of improvement.

Permittees interviewed had improved only a small percentage of their range and pasture resources, however, they are aware of the potential their land resources have for improvement. For example, the permittees

reported that 74.55 percent of their rangeland and 72 percent of their meadowland has potential for improvement.

Livestock grazing currently taken from the national forests is about one-third of the 1918 peak level and about one-half of the 1933 level. The probability is great that a further reduction will occur in the years ahead. The livestock industry can meet this situation in any of these alternative ways: (1) by reducing the number of livestock, (2) by substituting other feed for forest service grazing, and (3) by increasing the production of forage on the private ranges that remain available for grazing (Gardner, 1962). The following section is an economic appraisal of the third alternative.

ECONOMIC ANALYSIS OF RANGE IMPROVEMENTS

A rancher has several alternative methods of improving his private land resources. The ones considered for this study are: (1) spraying rangeland by helicopter or fixed-wing aircraft, (2) seeding rangeland to crested wheatgrass and/or other suitable grasses, and (3) fertilization of meadowland.

Spraying

Ranchers and public agencies interviewed estimated that 80 percent of the 271,002 acres of rangeland in the county had potential for improvement. Spraying was considered the most likely improvement practice for the area. They estimated that 56 percent or 151,176 acres of the land had suitable perennial grasses available, but because of competition with sagebrush the grasses were unable to produce at their potential. Spraying would kill the sagebrush and other undesirable brush species, and as grasses were released from sagebrush competition palatable forage would increase.

Experimental evidence is inconclusive as to how many years a spraying project will last before re-invasion of sagebrush occurs. Gardner (1962) reported that where 75 percent or more of the sagebrush has been killed, seedling re-establishment has been no problem. However, it seems

likely that if sufficient time elapses, brush re-invasion will occur even at proper stocking rates. In this study it is assumed that the spraying project has a fifteen-year life of increased capacity before the range carrying capacity is substantially reduced. Aerial spraying of sagebrush is usually done using butyl esters of the chemicals 2,4-D, and 2, 4, 5-T. Spraying should be done when the sagebrush is in an active stage of growth, and when weather conditions permit an even application which would be late May or June in Rich County. Application methods will differ for each project. If the terrain is rugged and localized spraying is desired, helicopter application is usually used. However, if the area to be sprayed is foothills or desert-type land, where localized spraying is not necessary, fixed-wing application is usually executed, mainly because of the lower per acre costs. In the county there is a need and potential for range-land spraying. However, the improvement of rangeland cannot be done without costs.

Costs associated with rangeland spraying projects go beyond those of chemical application. Additional investment may be required for fencing, water development, and non-use costs, which are the actual expenses involved in feeding the livestock until the sprayed area reaches a usable state (Nielsen, 1967). For this study non-use costs will be for a two-year period. Annual costs of fencing and water development maintenance must also be added to total costs and this cost will be incurred each year for the life of the project.

The following parameters were used in the cost and return analysis: (1) An AUM is valued at $3.50, based on an estimate of private lease rates in the study area. The estimate may be conservative; however, it is sufficient for the purposes made of it in the analysis. (2) Carrying capacity for a spraying project would increase from eight acres per AUM to three acres per AUM and for the seeding project carrying capacity would increase from 18.0 acres per AUM to 2.5 acres per AUM. These estimates were obtained from the BLM projects completed in the study area. (3) Spraying projects will last 10-15 years and seeding projects will last 20 years or more. These estimates were obtained from the projects completed within the intermountain area on somewhat comparable rangeland.

Costs for this study were divided into two categories: (1) initial costs, and (2) annual costs, as shown in Tables 8 and 9. Initial costs, using helicopter application, totaled $5.44 per acre with annual costs totaling $0.05 per acre. If these figures are multiplied by the estimated number of sprayable acres, the initial cost of $822,397 and an annual cost of $7,559 is obtained. Given the estimates on carrying capacity of eight acres per AUM before improvement the three acres per AUM after improvement, 31,495 additional AUMs will be supplied by spraying the sprayable acreage in the county. Multiply the AUMs supplied by $3.50, the value of the AUM within the county, and subtracting annual costs shows the project will return $102,673 per year to the ranchers of the county throughout the life of the project.

Table 8. Spraying cost estimates for rangeland improvement

Initial Costs:	
a. Spraying (helicopter)	$4.05/acre
b. Fencing	.28/acre
c. Water development	.67/acre
d. Non-use (2 year)	.44/acre
TOTAL initial costs	$5.44/acre
Annual Costs:	
a. Fence maintenance	$ .03/acre
b. Water development maintenance	.02/acre
TOTAL annual costs	$ .05/acre
Assumed Conditions:	
a. 8 acres per AUM before improvement[a]	
b. 3 acres per AUM after improvement[b]	
c. 15-year life for project	

[a]Estimated from BLM records on projects completed within the county.
[b]Estimated from BLM record on projects completed within the county.

Table 9. Spraying cost estimates for rangeland improvement

Initial Costs:	
a. Spraying (fixed-wing)	$2.65/acre
b. Fencing	.28/acre
c. Water development	.67/acre
d. Non-use (2 years)	.44/acre
TOTAL initial costs	$4.04/acre
Annual Costs:	
a. Fence maintenance	$ .03/acre
b. Water development maintenance	.02/acre
Total annual costs	$ .05/acre
Assumed Conditions:	
a. 8 acres per AUM before improvement[a]	
b. 3 acres per AUM after improvement[b]	
c. 15-year life for project	

[a]Estimated from BLM records on projects completed within the county.
[b]Estimated from BLM records on projects completed within the county.

Any investment in range spraying or other improvements has to be made at the present time, but the returns will come in over the life of the project. The return of a dollar each year for 15 years is not worth 15 dollars today; therefore, the income stream expected over 15 years has to be put in terms of the present. The process by which the flow of future returns are brought to the present is called discounting (Nielsen, 1967). However, to elude the problem of selecting an interest rate or discount rate the internal rate of return method will be used. The internal rate of return is computed as follows:

$$I = R \left[\frac{1 - (1 + 1)^{-n}}{1} \right]$$

Where

I = Initial investment

R = Net annual returns

$\left[\frac{1-(1+1)^{n}}{1} \right]$ = Discounting factor

For the helicopter spraying project the equation would be:

$$\$822,397 = \$120,673 \left[\frac{1-(1+1)^{-n}}{1} \right]$$

The solution of this equation for "i" would give the internal rate of return. To solve for "i" is rather difficult; therefore, tables have been constructed to simplify the process. To facilitate the use of the tabel divide both sides of the equation by $102,673. Thus the equation becomes:

$$\frac{\$822,397}{\$102,673} = \left[\frac{1-(1+1)^{-n}}{i}\right] \text{ or } 8.010 = \left[\frac{1-(1+1)^{-n}}{i}\right]$$

By using the discount factor of 8.010 the appropriate internal rates of return can be found. Given a project life of 15 years, the internal rate will be approximately nine percent. However, if re-invasion of brush occurs in less than 15 years (suppose 10 years), the internal rate of return will be approximately one percent.

The same procedure can be followed when applying the chemical by fixed-wing aircraft. Because of the lower per acre costs for application, the initial investment will be less. The annual costs are the same as those of the helicopter project, therefore, following the rationale used in the helicopter example the internal rates of return for fixed-wing application were obtained. For the 15 year-life project the internal rate of return was approximately 14.5 percent, and for the 10 year project it is approximately 11.0 percent.

The decision to invest or not to invest can now be made based on the magnitude of the internal rates of return for each type application. If one considers the returns a rancher normally receives from his ranch investment (3 percent or less), the improvement project looks very attractive for both methods at 10 and 15 year project lives. However, when ranchers have to borrow capital to start the improvements, the internal rate of return must exceed the cost of the capital or it will not pay them to invest. If they have the capital available to improve their land

resources, the internal rate of return should exceed the lending rate and alternative uses of capital before they should invest.

Rangeland spraying, on a county basis, appears to be an attractive alternative for improving the county's rangeland resources. However, on an individual ranch this may not be the case. If the value of an AUM, carrying capacity of the land, or capital availability are different than assumed the individual returns will vary considerably from those of the county. Consequently, it is important that each rancher consider his capital structure, land carrying capacity, and the value of an AUM on his particular ranch enterprise before making a decision of whether to improve his rangeland resources.

Seeding

Seeding was estimated to be the next best improvement alternative for rangeland. It was estimated that 24 percent or 65,040 acres could be seeded in the study area.

High costs are generally associated with seeding projects. The reason for this is the increased labor, machinery, and seed costs that are added when plowing and seeding the land. Seeding is usually done on land where productive soil exists, but because of improper use, undesirable plant species have over-run productive forages to the point that spraying will not increase perennial grasses enough to justify the costs of spraying.

Initial costs of seeding totaled $14.55 per acre, and annual cost totaled $0.21 per acre (Table 10). Cost estimates for fence and water developments are substantially higher for the seeding project. However, the cost estimates were obtained from public agencies and ranchers. It appears that ranchers and public agencies just did not invest as much in fencing and water developments on the sites they had sprayed.

Following the same rationale used for the spraying project, cost and returns for the seeding project were obtained. Total initial costs for the project amounted to $946,322 and annual costs were $13,658. The average carrying capacity figures of 18 acres per AUM before improvement and 2.5 acres per AUM after improvement were obtained from the BLM. They show that 22,403 AUMs could be supplied by seeding the estimated acres. Since these AUMs are valued at $3.50 each, the project will return $64,753 each year for the life of the project.

Seeding projects, according to many plant ecologists and economists, may have a perpetual life, that is, if managed and used properly they will last indefinitely (Gardner, 1962). Therefore, to establish a realistic internal rate of return a 20-year, 30-year, and a 40-year life for the seeding project were considered.

By using the formula:

$$I = R \left[\frac{1-(1+1)^{-n}}{i}\right]$$

Table 10. Seeding cost for rangeland improvement[a]

Initial Costs:		
a.	Double-plowing, seeding, and drilling	$11.51/acre
b.	Fencing	.99/acre
c.	Water development	1.47/acre
d.	Non-use (3 years)	.58/acre
	TOTAL Initial Costs	$14.55/acre
Annual Costs:		
a.	Fence maintenance	$ .09/acre
b.	Water development maintenance	.12/acre
	TOTAL Annual Costs	$ .21/acre
Assumed Conditions:		
a.	18 acres per AUM before improvement[b]	
b.	2.5 acres per AUM after improvement[c]	
c.	20-year life for the project	

[a] Average costs per acre obtained from BLM records on nine projects completed in the county.

[b] Estimated from BLM records on projects completed in the county.

[c] Estimated from BLM records on projects completed in the county.

Where:

I = Initial investment

R = Net annual returns

$\left[\frac{1-(1+i)^{-n}}{i}\right]$ = Discounting factor

The equation for the seeding project would be:

$$\$946,322 = \$64,753 \left[\frac{1-(1+i)^{-n}}{i}\right]$$

The solution of this equation for "i" would give the appropriate internal rate of return. To solve for "i" divide both sides of the equation by $64,753. Thus the equation becomes:

$$\frac{\$946,322}{\$64,753} = \left[\frac{1-(1+i)^{-n}}{i}\right] \quad \text{or} \quad 14.61 = \left[\frac{1-(1+i)^{-n}}{i}\right]$$

By using the discount factor of 14.61, the approximate internal rates of return were found. They were: three percent for the 20-year life project, five percent for the 30-year project, and seven percent for the 40-year life project. If the seeding lasts longer than 40 years it will return approximately seven percent each year for as long as it lasts.

Ranch owners and managers must, by considering their capital and resources alternatives, decide whether it is economically feasible for them to invest in a seeding project.

If these rangeland improvements were completed in the county they would supply 53,898 animal unit months of summer and spring-fall grazing. The Forest Service and BLM are currently supplying 40,115 animal unit

months of summer and some spring-fall grazing. Therefore, if the public land grazing was discontinued ranchers in the county could, by improving their private range resources, more than offset the loss of public grazing. It also appears from an economic point-of-view that rangeland improvements are feasible, especially if one considers the government cost-sharing programs available to the ranchers. It should be pointed out, however, that to improve or not to improve is a decision that each rancher must make himself after carefully considering all aspects of his base-ranch unit.

Meadow Fertilization

Meadow improvement is the least attractive alternative for supplying summer forage needs in the county. The main reason for this is the severe mosquito and insect problem that exists on the meadows during the summer months. Ranchers who had no other alternative reported that cattle left on the meadows during the summer made poor gains when compared to those cattle that grazed the Forest and BLM lands.

It was estimated that 33,818 acres of meadowland in the county had the potential for fertilization. Application rates reported averaged 80 pounds of nitrogen per acre at an average cost of $10.09 per acre. If forage production doubles, as was reported, 84,545 additional AUMs will be supplied at an annual cost of $341,224 or $4.04 per AUM.

If the forage production doubles, only one-half the land will be needed to supply the livestock's winter forage needs; therefore, the other half could be used for summer grazing. However, for the county, meadowland improvements should be considered only by those who need additional winter feed or by those who do not own improvable range resources.

There is a need in Rich County and in other areas of the West for more private and public land improvements. Even though the ranchers of Rich County could offset the loss of public grazing by improving only their range resources, there is still a need for meadow and public land improvements. If the ranchers, Forest Service, and the BLM will, through cooperative agreement, improve lands, the economy of the county will be boosted.

SUMMARY AND CONCLUSIONS

During the 1800's over-use and lack of management deteriorated much of the public domain in the western states. Demand for forage exceeded the supply until forage, watersheds, and soil productivity were damaged. It became apparent in the late 1800's that conservation and management were needed to preserve the public domain. In 1897 the Forest Reserve Act was passed which gave the federal government power to administer policies controlling livestock and other usage of these lands. In 1906 under the jurisdiction of the Department of Agriculture, grazing fees were charged for the first time. Since 1906 the Forest Service has required all non-temporary permit owners to report their livestock numbers, land resources, and feed resources every 10 years. These data were collected to insure that the commensurate property requirements were being met by the permit holders.

The first section of this thesis is an analysis of the livestock and land resource data collected in 1966. For this study cattle and sheep permittee's livestock and land resources were analyzed by forest within regions.

Small livestock operations were typical with less than 10 percent of the permittees owning more than 500 cattle. Commensurate land reported showed that cultivated land was owned by over 95 percent of the

cattle and sheep permittees, and yearlong range was owned by very few permittee ranchers. Only a small percentage of permittees leased land to obtain commensurability. However, many did lease land to supplement their forage needs.

Loss of federal rangeland to a ranch operator oftentimes seriously damages his livestock enterprise. When cut-backs do occur, ranchers have at least two alternatives: (1) lease private forage or (2) improve privately owned land resources. The second section of this thesis is an analysis of the economic possibilities of the second alternative.

Objective one was to determine if it was economically possible to offset the loss of Forest Service grazing by improving leased and privately owned land in Rich County, Utah. Objective two was to estimate costs and returns for various improvement practices that were possible in the county.

Rich County was chosen as the survey site mainly because of the importance of the livestock industry to the local economy. A random sample of 20 non-temporary cattle permittees were interviewed. A livestock, land, land improvement, and improvement cost inventory was obtained for each ranch in the sample.

It was found that Rich County ranchers could offset the complete loss of public grazing, however, each ranch situation was not considered. Each ranch operation is different, thus, the results of the county study may not hold for a particular ranch operation.

To determine if improving rangeland was economically feasible the internal rates of return for spraying and seeding rangeland were obtained. The internal rates of return showed that all improvement practices considered were economically feasible on a county basis. Again, this may not be the case for every individual rancher in the county.

If public grazing is discontinued it would be possible to supply needed forage by improving all available private land. The probability of all private land in the county being improved is very low. In order to get increased economic growth and prosperity in this rural county, both public and private resources should be improved simultaneously. It is possible for the livestock industry to grow in the county with proper use of these resources, even in the face of growing demands for other uses of the public lands.

LITERATURE CITED

Bromley, D. W., G. E. Blanch, and H. H. Stoevener. 1968. Effects of Selected Changes in Federal Land Use on a Rural Economy. Oregon Agricultural Experiment Station Bulletin 604, 27 p.

Caton, Douglas D. Western Livestock Ranching and Federal Rangeland (an interagency study). Washington, D. C., U. S. Department of Agriculture, Economic Research Service and U. S. Department of Interior, n.d., 339 pp. (Processed).

Clement, Lloyd A. 1968. Rich County Planning Data. Utah State University Extension Service, Special Report prepared for Rich County Commissioners, 51 p.

Cliff, Edward P. 1967. Address to the 20th Annual Convention American Society of Range Management, Seattle, Washington. February 14. (Mimeographed).

Dutton, W. L. 1953. History of Forest Service Grazing Fees. Journal of Range Management, 6(6) p. 393-398.

Evans, John R., Gordon S. Thompson, Harold W. Lee, and Osmond L. Harline. 1962. Beef cattle in the Utah Economy. The Bureau of Economic and Business Research. College of Business. University of Utah. 89 p.

Gardner, B. Delworth. 1963. A Proposal to Reduce Misallocation of Livestock Grazing Permits. Journal of Farm Economics, 45(1) p. 109-120.

Gardner, B. Delworth. 1962. Rates of Return to Improvement Practices on Private and Public Range. Land Economics, 38(1) p. 43-50.

McCorkle, C. O. Jr., and D. D. Caton. 1962. Economic Analysis of Range Improvement--A Guide for Western Ranchers. California Agricultural Experiment Station, Giannini Foundation Research Report No. 255, 79 p.

Nielsen, Darwin B. 1967. Economics of Range Improvements. Utah Agricultural Experiment Station Research Bulletin 466, 49 p.

Parkins, A. E. and J. R. Whitaker. 1939. Our Natural Resources and Their Conservation. John Wiley and Sons Inc., New York.

Topham, Mardell D. 1966. The Economic Value of Forage for Livestock on Public and Private Ranges in Utah. Unpublished MS thesis, Utah State University Library, Logan, Utah, 68 p.

Stoddart, L. A. 1940. Range Resources of Rich County, Utah. Utah Agricultural Experiment Station Research Bulletin 291, 30 p.

U. S. Department of Agriculture, Forest Service. 1960. Forest Service Manual, Title 8, Range Management, 3 (3), Washington, D. C.

Vallentine, John F., C. Wayne Cook, and L. A. Stoddart. 1963. Range Seeding in Utah. Extension Circular 307. Utah State University, Logan, Utah, 20 p.

APPENDIXES

Appendix A

Grazing Fees Analysis--Form for Compilation of Permit

Data From Forest and Grassland Records

Instructions:

(1) This form should be completed for all grazing permittees.
(2) Use the FS Organizational Code and GSA Geographical Location Codes to designate Region, Forest, City, County, etc.
(3) Items 1, 2, 3, 5, and 6 can be taken from Forms 2200-16 and 162.
(4) Item 4(a) should be completed only for those individuals who have acquired term permits for cattle or sheep since January 1, 1962. Transfers during the period January 1, 1962 through May 31, 1966 are to be reported at this time. Transfers during the period June 1, 1966 through December 31, 1966 are to be compiled on Form A as they occur and reported on January 1, 1967.
(5) Item 4(b) should be completed only for those individuals who have acquired term permits in 1966.

FS Code

FS Region _____

Nat. Forest (Grassland) _____

Ranger District _____

Grazing allotment _____

1. Permit Group: Cattle = 1; Sheep = 2; Horses = 3;

2. Name of Permittee _____
(Write in)

GSA Code

Address: Street or RFD _____
(Write in)

City _____
(If city is not listed in GSA Code, write in)

County _____

State _____

3. Number of Livestock Permitted to Graze under Paid Permit:

Term Permit(s) (including authorized non-use)						Temporary Permit(s)					
Item Code	No. of Head	Period of Use* Date on Month	Day	Date off Month	Day	Item Code	No. of Head	Period of Use* Date on Month	Day	Date off Month	Day
10						20					
10						20					
10						20					
10						20					
10						20					

*Use digits for Month and Day

4. (a) If this permittee acquired all or a part of his term permit for cattle or sheep by purchase of base property and/or livestock since January 1, 1962, include the following information:

Period during which permit was acquired: Jan. 1, 1962, thru May 31, 1966
Jan. 1, 1966, thru Dec. 31, 1966

Date of Transfer		Basis of Transfer (check one)			Item Code	No. of Head	Period of Use Date on		Date off	
Month	Year	Land	Livestock	Land and Livestock			Month	Day	Month	Day
					41					
					42					
					43					
					44					

Office Use

Item Code	Date	Basis Code
31		
32		
33		
34		

(b) If this permit was acquired in 1966, give the name and address of the individual who waived the permit:

Name: _____
(Write in)

City _____ GSA Code

(If city not listed in GSA Code, write in)

State _____

5. (a) Does this permittee have a permit on another forest (grassland)? Yes = 1; No = 2;
If yes, list Region and Forest Codes _____ _____ _____ _____

(b) Does this individual have a BLM Permit? Yes = 1; No = 2; _____

6. Information on base ranch unit:

	Put Data Here
(a) Total cattle owned (head)	
(b) Total sheep owned (head)	
(c) Total horses owned (head)	
(d) Acres of owned base ranch property which are:	
(1) Cultivated	
(2) Improved pasture	
(3) Summer range	
(4) Winter range	
(5) Spring-fall range	
(6) Year-long range	
(e) Acres of leased land in base ranch which are:	
(1) Cultivated	
(2) Summer range	
(3) Winter range	
(4) Spring-fall range	
(f) Tons of feed produced:	
(1) Hay	
(2) Straw	
(3) Grain	
(4) Other livestock feed	
(g) Tons of feed purchased	
(1) Hay	
(2) Grain	
(3) Other supplemental feeds	

Appendix B

Public Cattle Permit Data on National Forests, 1966

Table 11. Public cattle permit data on National Forests, 1966

Region 1 Forests	No. of permits reported	Non-temp. permits reported	No. of temp. permits reported[a]	Total AUM's	Average AUM's	No. of permittees reporting[b]	Total head[c]	Average head	Ave. length of grazing season[d]
Beaverhead	278	253	25	107,040	423	253	31,917	126	3.35
Bitterroot	61	34	27	6,342	187	34	1,519	45	4.17
Clearwater	18	0	18	0	0	0	0	0	0
Coeur d'Alene	35	9	26	913	101	9	215	24	4.25
C	114	82	32	16,799	205	82	3,471	42	4.84
Custer	896	867	29	513,438	592	867	78,079	90	6.58
Deerlodge	185	177	8	43,418	245	177	12,759	72	3.40
Flathead	30	0	30	0	0	0	0	0	0
Gallatin	194	151	43	21,533	143	151	6,558	43	3.28
Helena	161	155	6	35,411	228	155	12,519	81	2.83
Kaniksu	100	60	40	5,655	94	60	1,422	24	3 98
Kootenai	64	17	47	2,652	156	17	655	39	4.05
Lewis and Clark	257	236	21	49,747	211	236	13,852	59	3.59
Lolo	115	34	81	4,265	125	34	1,057	31	4.04
Nezperce	85	54	31	17,885	331	54	4,960	92	3.61
St. Joe	43	0	43	0	0	0	0	0	0

[a] Computed by subtracting non-temporary permits from permits reported.
[b] Permittees with non-temporary grazing permits.
[c] This represents the total head of cattle permitted on the forest.
[d] Computed by dividing total AUM's by total head (expressed in months).

Table 12. Public cattle permit data on National Forests, 1966

Region 2 Forests	No. of permits reported	Non-temp. permits reported	No. of temp. permits reported	Total AUM's	Average AUM's	No. of permittees reporting	Total head	Average head	Ave. length of grazing season
Arapaho	81	79	2	20,654	261	79	6,966	88	2.96
Bighorn	156	151	5	96,740	641	151	28,794	191	3.36
Black Hills	968	789	80	250.359	317	789	50,282	64	4.98
Grand Mesa	280	279	1	125,084	448	279	32,471	116	3.85
Gunnison	175	175	0	81.601	466	175	23,471	134	3.48
Medicine Bow	340	306	34	134,751	440	306	28,420	93	4.74
Nebraska	194	194	0	94,126	485	194	20,130	104	4.67
Pike	63	56	7	16,737	299	56	5,096	91	3.28
Rio Grande	188	185	3	51,022	276	185	14,007	76	3.64
Roosevelt	307	291	16	67,249	231	291	17,752	61	3.79
Routt	80	79	1	90,432	1,145	79	33,593	425	2.69
San Isabel	428	259	169	70,425	272	259	12,428	48	5.67
San Juan	213	209	4	90,966	435	209	23,844	114	3.81
Shoshone	110	106	4	55,598	525	126	16,123	152	3.49
White River	266	263	3	92,423	351	263	26,049	99	3.55

Table 13. Public cattle permit data on National Forests, 1966

Region 3 Forests	No. of permits reported	Non-temp. permits reported	No. of temp. permits reported	Total AUM's	Average AUM's	No. of permittees reporting	Total head	Average head	Average length of grazing season
Apache	212	203	9	193,905	955	203	25,849	127	7.50
Carson	645	624	21	53,507	86	624	11,584	19	4.62
Cibola	120	96	24	121,255	1,263	96	21,285	222	5.70
Coconino	103	102	1	154,572	1,515	102	31,400	308	4.92
Coronado	237	233	4	362.139	1,554	233	35,712	153	10.10
Gila	146	142	4	295,113	2.078	142	30,544	215	9.66
Kaibab	60	60	0	94,239	1,571	60	15,542	259	6.06
Lincoln	170	168	2	122,823	731	168	14,306	85	8.58
Prescott	75	74	1	171,295	2,315	74	17,835	351	9.60
Santa Fe	463	434	29	62,442	144	434	11,760	27	5.31
Sitgreaves	67	67	0	31,698	473	67	5,970	89	5.31
Tonto	114	113	1	396,276	3,507	113	45,425	402	8.72

Table 14. Public cattle permit data on National Forest, 1966

Region 4 Forests	No. of permits reported	Non-temp. permits reported	No. of temp. permits reported	Total AUM's	Average AUM's	No. of permittees reporting	Total head	Average head	Ave. length of grazing season
Ashley	153	151	2	37,263	247	151	10,199	68	3.65
Boise	97	96	1	30,106	314	96	7,584	79	3.97
Bridger	176	176	0	81,868	465	176	24,456	139	3.35
Cache	469	466	3	39,469	85	466	12,966	28	3.04
Caribou	429	423	6	102,932	243	423	25,402	60	4.05
Challis	190	185	5	78,077	422	185	21,343	115	3.66
Dixie	385	369	16	73,434	199	369	18,875	51	3.89
Fishlake	479	478	1	88,055	184	478	20,641	43	4.27
Humboldt	211	210	1	184,774	880	210	49,362	235	3 74
Manti-Lasal	402	401	1	92,490	231	401	22,568	56	4 10
Lasal	2	2	0	588	294	2	165	83	3.56
Payette	108	108	0	42,265	419	108	11,120	103	4.07
Salmon	98	97	1	40,918	422	97	10,235	106	4.00
Sawtooth	244	242	2	74,772	309	242	19,477	80	3.84
Targhee	163	161	2	47,555	295	161	14,767	92	3.22
Teton	67	67	0	58,624	875	67	14,717	220	3.98
Toiyabe	122	100	22	53,381	534	100	15,917	159	3.35
Uinta	345	345	0	54,756	159	345	12,953	38	4.23
Wasatch	129	129	0	23,413	181	129	6,000	47	3.90

Table 15. Public cattle permit data on National Forests, 1966

Region 5 Forests	No. of permits reported	Non-temp. permits reported	No. of temp. permits reported	Total AUM's	Average AUM's	No. of permittees reporting	Total head	Average head	Ave. length of grazing season
Angeles	2	1	1	148	148	1	50	50	2.98
Cleveland	26	2	24	187	94	2	43	22	4.34
Eldorado	44	35	9	7,580	217	35	3,299	94	2.30
Inyo	45	22	23	10,774	490	22	3,829	174	2.81
Klamath	83	76	7	20,252	266	76	5,597	74	3.62
Lassen	98	83	15	28,850	348	83	8,581	103	3.36
Los Padres	87	46	41	15,978	347	46	2,474	54	6.46
Mendocino	33	9	24	3,378	375	9	845	94	4.00
Modoc	167	165	2	93,374	566	165	23,121	140	4.04
Six Rivers	38	28	10	7,759	277	28	1,582	57	4.90
Plumas	79	60	19	13,356	223	60	3,822	64	3.49
San Bernardino	13	4	9	845	211	4	149	37	5.67
Sequoia	84	83	1	35,887	432	83	9.963	120	3.60
Shasta-Trinity	37	12	25	2,227	186	12	568	49	3.80
Sierra	56	46	10	18,362	399	46	5,580	121	3.29
Stanislaus	46	26	20	11,013	423	26	3,281	126	3.36
Tahoe	46	28	18	5,200	186	28	1,762	63	2.95

Table 16. Public cattle permit data on National Forests, 1966

Region 6 Forests	No. of permits reported	Non-temp. permits reported	No. of temp. permits reported	Total AUM's	Average AUM's	No. of permittees reporting	Total head	Average head	Ave. length of grazing season
Deschutes	30	25	5	7,928	317	25	2,307	92	3.44
Fremont	94	75	19	32,064	428	75	12,375	165	2.59
Gifford Pinchot	14	8	6	1,903	238	8	366	46	5.19
Malheur	143	140	3	78,757	563	140	19,129	127	4.12
Mt. Baker	1	1	0	70	70	1	35	35	2.00
Mt. Hood	17	16	1	4,760	298	16	1,232	77	3.86
Ochoco	257	222	35	41,439	187	222	16,241	73	2.55
Okanogan	130	129	1	34,521	268	129	9,540	74	3.62
Olympic	1	1	0	1,225	1,225	1	500	500	2.45
Rogue River	65	63	2	12,875	204	63	3,608	57	3.57
Siskiyou	16	10	6	995	100	10	348	35	2.86
Siuslaw	41	0	41	0	0	0	0	0	0
Snoqualmie	6	5	1	2,207	441	5	571	114	3.86
Umatilla	84	83	1	28,132	339	83	7,416	89	3.79
Umpqua	11	7	4	1,076	154	7	285	41	3.77
Wallowa-Whitman	185	168	17	106,929	636	168	26,278	156	4.07
Wanatchee	37	25	12	2,602	104	25	791	32	3.29
Willamette	8	0	8	0	0	0	0	0	0
Winema	28	15	13	3,907	15	15	1,072	71	3.64

Table 17. Livestock statistics for cattle permittees on National Forest lands, 1966

Region 1 Forests	No. of non-temp. permittees reporting	Total cattle owned	Average cattle owned	No. of non-temp. permittees reporting	Total sheep owned	Average sheep owned	No. of non-temp. permittees reporting	Total horses owned	Average horses owned
Beaverhead	278	181,551	653	47	76,264	1,623	262	5,658	22
Bitterroot	49	7,330	150	7	556	79	45	304	7
Clearwater	16	2,117	132	0	0	0	12	113	0
Coeur d'Alene	30	1,734	58	5	101	20	21	105	5
Colville	107	18,000	168	4	77	19	89	434	5
Custer	784	131,154	167	57	15,427	271	345	2,222	6
Deerlodge	159	45,076	283	9	2,610	290	145	1,280	9
Flathead	30	4,407	147	0	0	0	17	226	13
Gallatin	164	39,726	242	27	10,868	403	128	1,655	13
Helena	131	40,467	309	11	17,800	1,618	108	978	9
Kaniksu	92	6,669	72	5	94	19	46	169	4
Kootenai	60	4,707	78	0	0	0	39	203	5
Lewis and Clark	210	79,524	379	25	12,454	498	184	1,648	9
Lolo	109	15,920	146	6	171	29	78	566	7
Nes Perce	64	12,993	203	9	2,768	308	61	512	8
St. Joe	39	6,418	165	3	34	11	29	199	7

Table 18. Livestock statistics for cattle permittees on National Forest lands, 1966

Region 2 Forests	No. of non-temp. permittees reporting	Total cattle owned	Average cattle owned	No. of non-temp. permittees reporting	Total sheep owned	Average sheep owned	No. of non-temp. permittees reporting	Total horses owned	Average horses owned
Arapaho	71	18,168	256	5	23	5	60	708	12
Bighorn	146	68,278	468	21	15,054	717	134	2,009	15
Black Hills	620	102,594	165	53	12,228	231	459	3,146	7
Grand Mesa	239	48,221	202	31	34,244	1,105	222	1,553	7
Gunnison	145	43,359	299	8	2,428	304	133	1,325	10
Medicine Bow	284	121,423	428	93	159,934	1,720	260	5,795	22
Nebraska	177	53,028	300	28	7,288	260	152	931	6
Pike	63	16,963	269	8	4,047	506	48	493	10
Rio Grande	157	28,660	183	42	22,819	543	124	1,265	10
Roosevelt	215	30,923	144	2	1,825	913	131	1,104	8
Routt	73	25,212	345	12	4,507	376	69	1,097	16
San Isabel	428	66,776	156	16	3,033	190	238	1,384	6
San Juan	158	37,310	236	21	61,953	2,950	148	1,426	10
Shoshone	90	38,356	426	12	1,076	90	83	1,422	17
White River	229	48,672	213	30	7,953	265	204	1,652	8

Table 19. Livestock statistics for cattle permittees on National Forest lands, 1966

Region 3 Forests	No. of non-temp. permittees reporting	Total cattle owned	Average cattle owned	No. of non-temp. permittees reporting	Total sheep owned	Average sheep owned	No. of non-temp. permittees reporting	Total horses owned	Average horses owned
Apache	159	34,842	219	5	93	19	138	1,135	8
Carson	514	16,322	32	79	10,026	127	345	893	3
Cibola	101	33,836	335	5	11,348	2,270	88	798	9
Coconino	57	22,745	399	0	0	0	53	586	11
Coronado	209	72,351	346	1	420	420	190	1,905	10
Gila	136	48,169	354	1	70	70	129	1,323	10
Kaibab	46	15,752	342	0	0	0	36	286	9
Lincoln	145	20,708	143	7	6,419	917	117	601	5
Prescott	70	24,581	351	0	0	0	63	838	13
Santa Fe	421	14,692	35	26	1,228	47	346	1,147	3
Sitgreaves	55	10,297	187	3	21	7	42	385	9
Tonto	102	44,040	432	7	1	7	98	975	10

Table 20. Livestock statistics for cattle permittees on National Forest lands, 1966

Region 4 Forests	No. of non-temp. permittees reporting	Total cattle owned	Average cattle owned	No. of non-temp. permittees reporting	Total sheep owned	Average sheep owned	No. of non-temp. permittees reporting	Total horses owned	Average horses owned
Ashley	127	18,340	144	48	15,719	327	116	622	5
Boise	83	18,315	221	5	965	193	72	552	8
Bridger	163	57,935	355	37	6,949	188	150	2,199	15
Cache	440	34,796	79	67	12,309	184	326	1,206	4
Caribou	406	52,407	129	63	10,280	163	320	1,660	5
Challis	155	34,070	226	44	5,069	115	145	1,193	8
Dixie	364	34,506	95	63	12,581	200	281	985	4
Fish Lake	429	41,053	96	78	27,054	347	338	1,052	3
Humboldt	168	124,277	740	29	14,104	486	152	3,568	23
Matni-Lasal	376	35,560	94	52	30,281	582	265	1,136	4
Lasal	1	600	600	1	464	464	1	25	25
Payette	98	27,158	277	9	306	34	91	705	8
Salmon	91	28,693	315	25	4,048	162	87	929	11
Sawtooth	219	41,551	190	26	8,831	340	186	1,130	6
Targhee	153	26,446	173	24	16,255	677	133	846	6
Teton	57	23,956	420	2	752	376	50	805	16
Toiyabe	80	40,260	503	17	14,374	846	74	1,185	16
Uinta	328	27,697	84	35	13,065	373	229	862	4
Wasatch	117	18,908	162	22	34,893	1,586	98	1,096	11

Table 21. Livestock statistics for cattle permittees on National Forest lands, 1966

Region 5 Forests	No. of non-temp. permittees reporting	Total cattle owned	Average cattle owned	No. of non-temp. permittees reporting	Total sheep owned	Average sheep owned	No. of non-temp. permittees reporting	Total horses owned	Average horses owned
Angeles	2	265	133	0	0	0	1	5	5
Cleveland	20	5,956	298	0	0	0	19	111	6
Eldorado	33	12,665	384	3	1,745	582	32	225	7
Inyo	29	22,112	762	3	59	20	27	444	16
Klamath	74	18,198	246	1	20	20	66	515	8
Lassen	59	29,889	507	4	397	99	56	625	11
Los Padres	71	45,682	643	4	35,068	8,767	--	---	--
Mendocino	26	5,825	224	4	1,930	483	24	171	7
Modoc	136	62,480	459	20	4,200	210	120	1,373	11
Six Rivers	34	4,571	134	6	193	32			
Plumas	63	19,933	316	8	1,483	185	51	383	8
San Bernardino	13	3,121	240	3	18	6	12	74	6
Sequoia	52	34,811	669	3	60	20	50	493	10
Shasta-Trinity	34	5,930	174	2	205	103	27	188	7
Sierra	40	10,978	274	4	235	59	38	327	9
Stanislaus	33	18,677	566	3	320	107	32	408	13
Tahoe	31	9,439	304	3	122	41	30	210	7

Table 22. Livestock statistics for cattle permittees on National Forest lands, 1966

Region 6 Forests	No. of non-temp. permittees reporting	Total cattle owned	Average cattle owned	No. of non-temp. permittees reporting	Total sheep owned	Average sheep owned	No. of non-temp. permittees reporting	Total horses owned	Average horses owned
Deschutes	22	5,530	251	0	0	0	18	204	11
Fremont	69	46,858	679	9	4,395	488	62	952	15
Gifford Pinchot	13	1,244	94	0	0	0	10	48	5
Malheur	125	50,968	408	11	370	34	116	1,103	10
Mt. Baker	1	225	225	0	0	0	1	6	6
Mt. Hood	17	2,154	127	1	46	46	14	48	3
Ochoco	113	31,000	274	8	2,510	314	87	659	8
Okenogan	114	21,938	192	7	1,048	150	100	650	7
Olympic	1	700	700	0	0	0	1	15	15
Rogue River	61	9,800	161	5	221	44	46	173	4
Siskiyou	13	607	47	4	486	122	7	38	5
Siuslaw	38	1,705	45	3	706	235	16	53	3
Snoquelmie	6	1,258	210	1	23	23	5	23	5
Umatilla	81	22,059	272	12	7,074	590	78	437	6
Umpque	10	765	77	1	150	150	8	70	9
Wallowa-Whitman	138	53,764	390	18	2,602	145	125	1,007	8
Wenatchee	37	4,785	129	0	0	0	30	116	4
Willamette	8	338	42	2	45	23	5	17	3
Winema	25	14,470	579	1	700	700	20	221	11

Table 23. Commensurate land inventory for cattle permittees on National Forest lands, 1966

Region 1 Forests	No. of owners	Total cultivated acres	Ave. cultivated acres	No. of owners	Total improved pasture acres	Ave. improved pasture acres	No. of owners	Total summer range acres	Average summer range acres
Beaverhead	276	224,365	813	182	128,690	707	155	426,808	2,754
Bitterroot	47	9,684	206	19	8,806	463	22	24,729	1,124
Clearwater	14	2,510	179	7	1,244	178	3	661	220
Coeur d'Alene	26	3,685	142	19	2,443	129	14	3,241	232
Colville	105	25,249	240	60	5,732	96	66	62,200	942
Custer	336	103,120	307	215	53,007	247	149	202,557	1,359
Deerlodge	155	60,577	391	81	19,066	235	105	151,021	1,438
Flathead	25	7,876	315	17	5,652	332	23	11,132	484
Gallatin	156	61,519	394	71	18,969	267	122	250,426	2,053
Helena	127	55,189	435	53	13,337	252	73	221,153	3,029
Kaniksu	88	13,129	149	52	3,989	77	71	43,483	612
Kootenai	59	8,058	137	40	6,314	158	33	9,550	289
Lewis and Clark	181	95,280	526	60	48,056	696	159	362,483	2,280
Lolo	105	26,083	248	53	7,967	150	70	55,729	796
Nezperce	59	14,601	247	29	5,085	175	17	8,841	520
St. Joe	33	15,582	472	26	3,177	122	24	12,716	530

Table 23. Continued

Region 1 Forests	No. of owners[a]	Total winter range acres[b]	Average winter range acres	No. of owners[a]	Total spring-fall range acres	Average spring-fall range acres	No. of owners[a]	Total year-long range acres[b]	Average year-long range acres
Beaverhead	60	134,462	2,241	199	408,826	2,054	13	12,159	935
Bitterroot	4	1,592	398	34	25,032	736	0	0	0
Clearwater	2	1,055	528	14	9,274	662	1	93	93
Coeur d'Alene	1	100	100	13	6,791	552	2	541	271
Colville	7	6,615	945	82	60,579	739	0	0	0
Custer	195	298,263	1,530	164	96,529	589	18	38,216	2,123
Deerlodge	27	524,402	19,422	124	265,937	2,145	9	1,125,170	125,019
Flathead	4	6,298	1,575	14	8,704	622	2	403	202
Gallatin	59	2,033	2,033	114	189,493	1,662	5	121,035	24,207
Helena	32	2,611	2,611	75	158,654	2,115	42	158,413	3,772
Kaniksu	2	145	145	26	6,498	250	2	50	25
Kootenai	4	319	319	28	5,052	180	2	926	463
Lewis and Clark	134	1,735	1,735	105	230,970	2,200	40	93,573	2,339
Lolo	10	513	513	58	44,136	761	1	1,700	1,700
Nezperce	24	1,644	1,644	43	69,998	1,628	2	1,841	921
St. Joe	11	1,399	1,399	18	16,572	921	4	4,005	1,001

[a] Permittees with non-temporary grazing permits reporting various types of land ownership.
[b] Amount of land reported by individual permittees for different types of land classifications.

Table 24. Commensurate land inventory for cattle permittees on National Forest lands, 1966

Region 2 Forests	No. of owners	Total cultivated acres	Ave. cultivated acres	No. of owners	Total improved pasture acres	Ave. improved pasture acres	No. of owners	Total summer range acres	Average summer range acres
Arapaho	63	25,642	207	42	16,729	398	54	80,093	1,483
Bighorn	138	46,328	336	88	19,048	216	60	77,420	1,290
Black Hills	546	141,564	259	290	65,624	226	368	379,619	1,031
Grand Mesa	237	50,057	211	204	38,633	189	113	153,619	1,359
Gunnison	143	44,908	314	117	36,914	316	103	107,182	1,041
Medicine Bow	219	117,624	537	84	63,559	757	219	1,017,842	4,648
Nebraska	127	43,362	341	36	26,251	729	103	187,136	1,817
Pike	44	20,594	468	48	52,207	1,088	31	107,266	3,464
Rio Grande	125	50,413	403	122	51,346	421	48	60,576	1,262
Roosevelt	156	48,996	314	29	16,209	559	44	64,670	1,470
Routt	72	45,942	638	58	28,228	487	52	77,748	1,495
San Isabel	343	170,788	498	112	20,328	182	108	192,558	1,783
San Juan	155	47,149	304	113	27,500	243	63	70,318	1,116
Shoshone	88	35,870	408	65	11,746	181	34	58,128	1,710
White River	224	64,328	287	174	40,536	233	140	105,316	752

Table 24. Continued

Region 2 Forests	No. of owners	Total winter range acres	Average winter range acres	No. of owners	Total spring-fall range acres	Average spring-fall range acres	No. of owners	Total year-long range acres	Average year-long range acres
Arapaho	11	14,810	1,346	44	49,709	1,130	1	341	341
Bighorn	42	59,284	1,412	65	76,995	1,185	37	81,854	2,212
Black Hills	431	380,987	884	216	152,102	704	64	56,417	881
Grand Mesa	47	45,338	965	162	152,768	943	7	5,130	733
Gunnison	21	19,041	907	68	47,048	692	4	5,078	1,270
Medicine Bow	206	1,604,651	7,790	79	435,426	5,512	4	9,627	2,407
Nebraska	153	238,489	1,559	33	39,126	1,186	17	24,228	1,425
Pike	35	61,375	1,753	23	40,266	1,751	13	324,144	2,493
Rio Grande	32	26,944	842	53	60,983	1,151	3	120	40
Roosevelt	162	231,599	1,430	53	78,960	1,490	4	14,665	3,666
Routt	8	10,592	1,324	48	79,645	1,659	3	1,475	492
San Isabel	160	219,439	1,371	42	58,790	1,400	89	290,505	3,264
San Juan	43	587,543	13,663	98	83,242	849	9	53,843	5,983
Shoshone	24	66,378	2,766	48	126,276	2,631	22	98,817	4,492
White River	10	4,421	442	146	118,444	811	3	460	153

Table 25. Commensurate land inventory for cattle permittees on National Forest lands, 1966

Region 3 Forests	No. of owners	Total cultivated acres	Ave. cultivated acres	No. of owners	Total improved pasture acres	Ave. improved pasture acres	No. of owners	Total summer range acres	Average summer range acres
Apache	87	21,067	242	54	20,487	379	33	21,116	640
Carson	446	23,869	54	236	16,210	69	117	59,900	512
Cibola	19	1,912	101	4	928	232	8	80,219	10,027
Coconino	10	1,021	102	27	4,188	155	25	5,913	237
Coronado	26	5,757	221	11	7,743	704	5	14,179	2,836
Gila	54	2,397	44	14	815	58	5	797	159
Kaibab	12	917	76	16	3,297	206	27	13,261	491
Lincoln	37	2,309	62	21	792	38	24	13,870	578
Prescott	19	1,885	99	25	10,908	436	15	30,054	2,004
Santa Fe	354	2,556	7	76	6,314	83	12	5,654	471
Sitgreaves	17	860	51	17	761	45	12	1,914	160
Tonto	26	935	36	17	1,929	113	16	4,870	304

Table 25. Continued

Region 3 Forests	No. of owners	Total winter range acres	Average winter range acres	No. of owners	Total spring-fall range acres	Average spring-fall range acres	No. of owners	Total year-long range acres	Average year-long range acres
Apache	65	72,293	1,112	24	24,197	1,008	58	49,156	848
Carson	98	29,050	296	63	13,282	211	69	41,613	603
Cibola	14	166,579	11,899	8	33,057	4,132	77	566,616	7,359
Coconino	18	83,725	4,651	3	1,526	509	7	3,659	523
Coronado	4	6,490	1,623	3	2,180	727	198	654,688	3,307
Gila	9	1,704	189	3	552	184	119	146,934	1,235
Kaibab	10	8,185	819	8	4,044	506	11	227,341	20,667
Lincoln	10	8,160	816	1	130	130	115	362,234	3,150
Prescott	9	18,843	2,094	10	9,973	997	42	199,287	4,745
Santa Fe	37	5,793	157	2	120	60	10	8,348	835
Sitgreaves	7	5,110	730	5	1,122	224	25	30,425	1,217
Tonto	5	251	50	4	189	47	68	11,350	167

Table 26. Commensurate land inventory for cattle permittees on National Forest lands, 1966

Region 4 Forests	No. of owners	Total cultivated acres	Ave. cultivated acres	No. of owners	Total improved pasture acres	Ave. improved pasture acres	No. of owners	Total summer range acres	Average summer range acres
Ashley	124	19,294	156	98	15,159	155	26	11,022	424
Boise	79	23,172	293	53	16,662	314	38	61,555	1,620
Bridger	161	103,441	642	131	62,836	480	82	115,975	1,414
Cache	434	73,029	168	278	22,776	82	114	54,102	475
Caribou	392	149,692	382	251	44,202	176	125	54,865	439
Challis	154	37,741	245	137	44,885	328	64	30,183	472
Dixie	327	26,497	81	248	26,764	108	121	98,683	816
Fishlake	421	59,699	142	228	18,030	79	109	46,328	425
Humboldt	163	140,606	863	141	109,074	774	97	336,952	3,474
Manti-Lasal	363	37,103	102	258	26,273	101	67	34,489	515
Lasal	1	500	500	1	160	160	0	0	0
Payette	95	26,421	278	76	25,218	332	37	26,623	720
Salmon	91	33,057	363	69	18,978	275	41	21,797	532
Sawtooth	217	85,698	395	181	77,850	430	69	114,897	1,665
Targhee	152	54,157	356	128	37,442	293	41	20,163	492
Teton	55	29,373	534	44	18,516	421	32	34,677	1,084
Tuiyabe	72	44,638	620	64	60,040	938	34	74,696	2,197
Uintah	311	40,341	130	221	21,829	99	68	20,004	294
Wasatch	109	16,251	149	98	25,193	257	46	64,815	1,409

Table 26. Continued

Region 4 Forests	No. of owners	Total winter range acres	Average winter range acres	No. of owners	Total spring-fall range acres	Average spring-fall range acres	No. of owners	Total year-long range acres	Average year-long range acres
Ashley	13	2,433	187	58	49,847	859	14	5,215	373
Boise	9	9,385	1,043	64	117,151	1,830	2	418	209
Bridger	8	9,225	1,153	57	52,357	919	2	1,580	790
Cache	9	8,269	919	196	73,272	374	10	1,960	196
Caribou	11	6,154	559	214	105,553	493	12	1,005	84
Challis	15	2,496	166	45	15,717	349	6	5,961	994
Dixie	71	29,464	415	183	76,560	418	24	6,022	251
Fishlake	61	42,150	691	219	116,450	532	20	3,991	200
Humboldt	8	17,128	2,141	94	323,316	3,440	21	37,514	1,786
Manti-Lasal	65	27,124	417	211	74,976	355	51	7,650	150
Lasal	0	0	0	1	1,680	1,680	0	0	0
Payette	5	28,655	5,731	77	123,198	1,600	1	4,160	4,160
Salmon	10	4,530	453	39	19,044	488	7	3,027	432
Sawtooth	20	20,657	1,033	124	102,365	826	28	25,793	921
Targhee	6	8,038	1,340	101	122,041	1,208	0	0	0
Teton	2	1,624	812	14	17,778	1,270	2	2,095	1,048
Toiyabe	17	58,071	3,416	29	28,636	987	6	7,788	1,298
Uintah	19	4,625	243	109	60,440	554	18	4,152	231
Wasatch	37	51,092	1,381	54	69,361	1,284	12	20,822	1,735

Table 27. Commensurate land inventory for cattle permittees on National Forest lands, 1966

Region 5 Forests	No. of owners	Total cultivated acres	Ave. cultivated acres	No. of owners	Total improved pasture acres	Ave. improved pasture acres	No. of owners	Total summer range acres	Average summer range acres
Angeles	2	2,300	1,150	0	0	0	1	3,000	3,000
Cleveland	6	1,027	171	5	1,297	259	8	8,441	1,055
Eldorado	14	4,821	344	14	6,782	484	17	31,441	1,869
Inyo	17	4,362	257	21	14,361	684	11	28,362	2,578
Klamath	64	19,978	312	51	12,955	254	21	27,865	1,327
Lassen	43	17,417	405	31	15,089	487	25	40,303	1,612
Los Padres	43	164,422	3,824	22	45,514	2,069	18	274,800	15,267
Mendocino	11	2,287	208	11	1,677	152	10	16,120	1,612
Modoc	134	86,948	649	94	47,236	503	76	136,753	1,799
Six Rivers	21	1,423	68	12	1,325	110	10	16,140	1,614
Plumas	46	22,430	488	42	22,107	526	33	61,538	1,865
San Bernardino	7	495	71	10	4,473	447	6	3,061	510
Sequoia	29	8,773	301	23	7.028	306	30	75,832	2,528
Shasta-Trinity	22	3,669	167	20	4,156	208	10	7,268	727
Sierra	12	2,097	175	18	3,455	192	10	11,960	1,196
Stanislaus	14	3,655	261	16	3,679	230	6	2,339	390
Tahoe	15	3,851	257	15	2,667	178	14	9,791	699

Table 27. Continued

Region 5 Forests	No. of owners	Total winter range acres	Average winter range acres	No. of owners	Total spring-fall range acres	Average spring-fall range acres	No. of owners	Total year-long range acres	Average year-long range acres
Angeles	1	3,000	3,000	1	2,000	2,000	1	680	680
Cleveland	5	3,450	690	8	3,313	414	3	40,660	13,553
Eldorado	23	49,819	2,166	5	9,440	1,888	0	0	0
Inyo	11	13,186	1,199	6	3,007	501	2	2,700	1,350
Klamath	17	22,279	1,311	51	74,482	1,539	5	1,553	311
Lassen	25	106,938	4,278	29	87,085	3,003	0	0	0
Los Padres	13	8,529	656	19	16,868	888	28	248,544	8,877
Mendocino	18	44,044	2,447	5	7,396	1,479	1	640	640
Modoc	5	1,990	398	78	137,364	1,761	7	6,483	920
Six Rivers	14	37,694	2,692	13	6,692	515	5	13,687	2,737
Plumas	24	4,643	1,935	34	50,092	1,473	0	0	0
San Bernardino	2	14,000	7,000	0	0	0	3	24,000	8,000
Sequoia	37	157,714	4,263	26	75,923	2,920	9	16,354	1,817
Chasta-Trinity	9	8,024	892	4	5,041	1,260	2	190	95
Sierra	23	33,585	1,460	15	20,304	1,354	13	14,652	1,127
Stanislaus	24	81,295	3,387	13	26,831	2,064	4	6,449	1,612
Tahoe	17	25,565	1,504	7	11,249	1,607	0	0	0

Table 28. Commensurate land inventory for cattle permittees on National Forest lands, 1966

Region 6 Forests	No. of owners	Total cultivated acres	Ave. cultivated acres	No. of owners	Total improved pasture acres	Ave. improved pasture acres	No. of owners	Total summer range acres	Average summer range acres
Deschutes	20	8,192	410	18	6,126	340	8	12,380	1,548
Fremont	69	72,805	1,055	47	66,297	1,411	53	132,272	2,496
Gifford Pinchot	12	1,390	116	7	540	77	6	2,272	379
Malhuer	120	61,395	512	61	33,321	546	90	208,263	2,314
Mt. Baker	1	25	25	0	0	0	0	0	0
Mt. Hood	17	8,225	484	12	1,058	88	7	31,795	4,542
Ochoco	109	48,294	443	79	19,118	242	43	153,118	3,561
Okanogan	109	28,726	264	70	11,122	159	62	56,060	904
Olympic	1	475	475	0	0	0	1	4,000	4,000
Rogue River	57	5,666	99	42	5,878	140	14	6,812	487
Siskiyou	8	454	57	12	3,925	327	2	95	48
Siuslaw	23	3,158	137	30	1,598	53	18	1,373	76
Snoqualmie	6	611	102	5	185	37	1	120	120
Umatilla	81	39,238	484	36	8,084	225	55	84,379	1,534
Umpqua	9	1,096	122	7	1,167	167	2	491	246
Wallowa-Whitman	133	47,626	358	90	19,641	218	76	197,338	2,597
Wenatchee	36	5,095	142	23	1,923	84	24	13,268	553
Willamette	5	668	134	6	379	63	0	0	0
Winema	22	33,320	1,515	18	48,225	2,679	14	9,764	697

Table 28. Continued

Region 6 Forests	No. of owners	Total winter range acres	Average winter range acres	No. of owners	Total spring-fall range acres	Average spring-fall range acres	No. of owners	Total year-long range acres	Average year-long range acres
Deschutes	6	6,855	1,143	14	32,213	2,301	3	1,996	665
Fremont	12	23,586	1,966	48	103,275	2,152	4	1,561	390
Gifford Pinchot	2	2,350	118	8	5,259	657	2	595	298
Malhuer	14	30,995	2,214	108	356,095	3,297	10	22,701	2,270
Mt. Baker	0	0	0	0	0	0	1	250	250
Mt. Hood	4	5,890	1,473	14	14,972	1,069	1	1,750	1,750
Ochoco	12	39,160	3,263	83	355,963	4,289	3	4,804	1,601
Okanogan	5	9,154	1,831	107	155,848	1,457	3	1,131	377
Olympic	1	6,000	6,000	1	11,722	11,722	0	0	0
Rogue River	11	2,826	257	44	31,891	725	2	252	126
Siskiyou	3	470	157	4	420	105	1	40	40
Siuslaw	7	667	95	5	187	37	13	1,758	135
Snoquaimie	1	520	520	4	8,457	2,114	0	0	0
Umatilla	35	84,795	2,423	58	170,845	2,946	2	2,757	1,379
Umpqua	4	1,267	317	4	1,778	445	3	3,225	1,075
Wallowa-Whitman	30	102,424	3,414	96	184,996	1,927	2	12,550	6,275
Wenatchee	1	161	161	21	16,070	765	0	0	0
Willamette	0	0	0	5	886	177	0	0	0
Winema	3	1,284	428	12	22,157	1,846	2	1,425	713

Table 29. Inventory of acres leased by Forest Service cattle permittees, 1966

Region 1 Forests	No. of leasees	Total cultivated acres leased	Average cultivated acres leased	No. of leasees	Total summer range leased	Average summer range leased	No. of leasees	Total winter range leased	Average winter range leased	No. of leasees	Total spring-fall range leased	Average spring-fall range leased	BLM permits
Beaverhead	41	15,111	368	80	130,051	1,626	20	15,837	792	91	260,738	2,865	165
Bitterroot	6	2,125	354	22	24,040	1,093	1	280	280	7	1,045	149	1
Clearwater	6	554	92	1	1,200	1,200	0	0	0	8	5,474	684	0
Couer d'Alene	6	743	124	12	10,294	858	1	300	300	1	900	900	0
Colville	30	4,504	150	46	30,163	656	6	13,322	2,220	39	28,354	727	11
Custer	62	17,795	287	111	155,199	1,398	60	99,735	1,662	46	39,060	849	53
Deerlodge	18	3,281	182	51	52,107	1,022	7	2,340	334	24	24,238	1,010	64
Flathead	5	1,260	252	16	60,061	3,754	3	2,640	880	4	1,910	478	0
Gallatin	18	10,372	576	46	142,340	3,094	8	5,004	626	27	20,256	750	13
Helena	19	4,102	228	49	80,731	1,648	10	9,825	983	19	34,764	1,830	28
Kaniksu	23	2,792	121	28	12,135	433	2	695	348	14	2,763	198	2
Kootenai	11	904	82	22	72,557	3,298	1	600	600	10	2,545	255	0
Lewis and Clark	34	10,568	311	98	136,718	1,395	52	46,930	903	44	34,887	793	22
Lolo	1	1,700	1,700	18	2,944	164	50	76,413	153	5	1,980	396	2
Nezperce	15	2,872	191	11	30,930	2,812	8	3,957	495	29	17,712	611	20
St. Joe	11	3,186	290	12	26,121	2,177	6	5,190	865	11	7,968	724	6

[a] Permittees with non-temporary grazing permits reporting various types of leased land.
[b] Amount of land reported leased by permittees for different types of land classifications.
[c] Number of Forest Service permittees who also have BLM permits.

Table 30. Inventory of acres leased by Forest Service cattle permittees, 1966

Region 2 Forests	No. of leasees	Total cultivated acres leased	Average cultivated acres leased	No. of leasees	Total summer range leased	Average summer range leased	No. of leasees	Total winter range leased	Average winter range leased	No. of leasees	Total spring-fall range leased	Average spring-fall range leased	BLM permits
Araphao	10	7,620	762	19	19,962	1,051	7	12,150	1,736	22	40,528	1,842	37
Bighorn	23	3,947	172	44	118,223	2,687	26	95,638	3,678	38	100,462	2,644	68
Black Hills	113	29,088	257	169	167,409	991	127	79,737	628	76	64,097	843	33
Grand Mesa	36	5,692	158	28	22,257	795	15	10,925	728	30	9,266	309	159
Gunnison	25	5,519	221	30	23,779	793	5	2,125	425	14	6,738	481	87
Medicine Bow	28	21,330	762	147	377,651	2,569	102	550,816	5,400	30	127,602	4,253	87
Nebraska	24	5,860	244	56	58,078	1,037	34	21,227	624	10	13,090	1,309	1
Pike	7	1,625	232	25	29,626	1,185	14	30,259	2,161	14	164,148	1,172	24
Rio Grande	31	5,436	175	37	37,013	1,000	8	3,950	494	11	11,055	1,005	52
Roosevelt	40	12,751	319	22	58,980	2,681	93	59,319	638	15	15,154	1,010	8
Routt	16	2,717	170	31	41,045	1,324	2	7,100	3,550	18	15,406	856	29
San Isabella	219	193,139	882	115	105,321	916	99	105,483	1,065	73	173,423	2,376	9
San Juan	27	3,920	145	32	21,915	685	23	43,967	1,912	31	14,444	466	41
Shoshone	12	5,127	427	29	162,251	5,595	9	38,040	4,227	21	73,212	3,486	52
White River	31	5,267	170	36	30,698	853	1	50	50	20	17,865	596	145

Table 31. Inventory of acres leased by Forest Service cattle permittees, 1966

Region 3 Forests	No. of leasees	Total cultivated acres leased	Average cultivated acres leased	No. of leasees	Total summer range leased	Average summer range leased	No. of leasees	Total winter range leased	Average winter range leased	No. of leasees	Total spring-fall range leased	Average spring-fall range leased	BLM permits
Apache	7	10,365	1,481	18	45,703	2,539	51	249,195	4,886	7	17,182	2,455	28
Carson	76	4,997	66	36	10,237	284	33	39,602	1,200	19	10,205	537	55
Cibola	5	1,340	268	5	7,560	1,512	14	51,440	3,674	20	81,639	4,082	46
Coconino	5	1,274	255	10	16,213	1,621	14	216,711	15,479	2	3,800	1,900	4
Coronado	2	250	125	8	16,200	2,025	3	7,061	2,354	9	20,163	2,240	48
Gila	0	0	0	1	640	640	0	0	0	1	49,500	49,500	36
Kaibab	2	280	140	16	13,093	818	6	50,750	8,458	8	49,540	6,193	24
Lincoln	0	0	0	5	2,705	541	8	135,630	1,695	14	85,911	6,137	34
Prescott	2	5,640	2,820	5	32,078	6,416	6	70,293	11,716	20	127,647	6,382	20
Santa Fe	7	2,650	379	2	6,520	3,260	3	180	60	2	794	397	60
Sitgreaves	2	915	458	5	44,710	8,942	20	259,186	12,959	4	3,275	819	6
Tonto	0	0	0	0	0	0	0	0	0	1	350	350	6

Table 32. Inventory of acres leased by Forest Service cattle permittees, 1966

Region 4 Forests	No. of leasees	Total cultivated acres leased	Average cultivated acres leased	No. of leasees	Total summer range leased	Average summer range leased	No. of leasees	Total winter range leased	Average winter range leased	No. of leasees	Total spring-fall range leased	Average spring-fall range leased	BLM permits
Ashley	40	4,573	114	32	23,977	749	9	32,033	3,659	16	11,502	719	36
Boise	13	1,130	87	31	80,088	2,583	1	100	100	30	20,211	674	46
Bridger	46	15,970	347	55	40,776	741	3	1,360	453	22	18,302	832	72
Cache	129	12,602	98	64	18,106	283	0	0	0	82	23,684	289	62
Caribou	104	27,746	267	74	24,731	334	8	4,527	566	63	36,530	580	132
Challis	16	2,505	157	31	20,823	672	3	1,440	480	23	14,086	612	147
Dixie	39	2,887	74	44	25,947	590	38	57,950	1,525	37	33,820	914	249
Fishlake	78	6,377	82	48	16,726	348	24	19,430	810	40	32,535	813	213
Humboldt	2	621	311	2	3,650	1,825	0	0	0	1	250	250	142
Manti-Lasal	47	3,498	74	27	39,796	1,474	27	85,204	3,156	51	31,269	613	190
Lasal	0	0	0	0	0	0	0	0	0	1	320	320	1
Payette	24	4,470	186	37	33,640	090	3	3,180	1,060	30	26,826	894	11
Salmon	7	1,178	168	15	13,989	933	1	300	300	7	8,531	1,219	78
Sawtooth	38	15,056	396	44	36,682	834	10	13,152	1,315	36	22,554	627	15
Targhee	42	9,494	226	20	29,089	1,454	2	1,120	560	59	29,623	502	69
Teton	20	5,270	264	23	11,695	508	2	780	390	9	6,773	753	6
Toiyabe	6	1,590	265	16	29,097	1,819	6	5,980	997	3	1,320	440	54
Uintah	90	15,916	177	42	9,550	227	9	6,310	701	42	49,570	1,180	43
Wasatch	28	2,419	86	28	29,117	1,040	19	28,847	1,518	14	15,231	1,088	57

Table 33. Inventory of acres leased by Forest Service cattle permittees, 1966

Region 5 Forests	No. of leasees	Total cultivated acres leased	Average cultivated acres leased	No. of leasees	Total summer range leased	Average summer range leased	No. of leasees	Total winter range leased	Average winter range leased	No. of leasees	Total spring-fall range leased	Average spring-fall range leased	BLM permits
Angeles	1	410	410	0	0	0	0	0	0	1	50	50	1
Cleveland	3	109	36	5	9,900	1,980	3	3,100	1,033	7	32,080	4,583	4
Eldorado	2	2,095	1,048	11	49,739	4,522	21	37,976	1,808	4	4,500	1,125	0
Inyo	15	9,332	622	14	151,216	10,801	18	399,751	22,208	9	261,992	29,110	26
Klamath	13	2,115	163	14	22,278	1,591	7	24,300	3,471	20	34,769	1,738	12
Lassen	7	2,479	354	24	159,687	6,654	15	63,983	4,266	6	5,623	937	13
Los Padres	7	1,345	192	17	29,960	1,762	10	58,123	5,812	14	198,950	14,211	9
Mendocino	3	720	240	9	12,695	1,411	8	14,895	1,862	3	12,570	4,190	1
Modoc	26	11,261	433	29	56,460	1,947	1	2,000	2,000	14	17,061	1,219	91
Six Rivers	3	1,243	414	6	2,580	430	10	11,939	1,194	9	4,907	545	0
Plumas	8	1,793	224	12	41,345	3,445	11	21,870	1,988	7	9,420	1,346	19
San Bernardino	1	190	190	7	4,653	665	6	6,500	1,083	2	1,900	950	2
Sequoia	7	1,703	243	17	28,507	1,677	15	2,815	1,521	7	6,966	995	14
Shasta-Trinity	8	1,520	190	12	180,340	15,028	16	31,720	1,983	6	5,460	910	0
Sierra	4	490	123	11	7,870	715	17	21,387	1,258	14	11,943	853	1
Stanislaus	5	1,280	256	6	8,180	1,363	23	66,876	2,908	16	30,650	1,916	12
Tahoe	4	3,140	785	14	52,993	3,785	13	25,933	1,995	5	6,740	1,348	2

Table 34. Inventory of acres leased by Forest Service cattle permittees, 1966

Region 6 Forests	No. of leasees	Total cultivated acres leased	Average cultivated acres leased	No. of leasees	Total summer range leased	Average summer range leased	No. of leasees	Total winter range leased	Average winter range leased	No. of leasees	Total spring-fall range leased	Average spring-fall range leased	BLM permits
Deschutes	2	520	260	3	8,880	2,960	2	9,800	4,900	2	4,763	2,382	19
Fremont	9	2,820	313	29	174,303	6,010	3	4,800	1,600	9	21,090	2,343	38
Gifford Pinchot	6	35,495	5,916	5	33,980	6,796	0	0	0	6	1,953	326	0
Malheur	23	7,328	319	54	84,817	1,570	3	7,745	2,582	30	37,545	1,252	71
Mt. Baker	0	0	0	0	0	0	0	0	0	0	0	0	0
Mt. Hood	5	1,250	250	3	4,980	1,660	0	0	0	4	2,295	574	3
Ochoco	19	3,714	195	20	68,190	3,410	3	8,018	2,673	23	20,992	913	55
Okanogan	26	4,642	179	58	57,376	989	9	19,220	2,136	52	49,543	953	8
Olympic	0	0	0	0	0	0	0	0	0	1	3,000	3,000	0
Rogue River	14	1,374	98	16	21,893	1,368	3	610	203	17	27,068	1,592	35
Siskiyou	1	55	55	0	0	0	0	0	0	1	2,500	2,500	0
Siuslaw	9	453	50	5	257	51	2	42	21	2	52	26	0
Snoqualmie	3	297	9	1	18,000	18,000	0	0	0	3	3,705	1,235	0
Umatilla	29	7,344	253	40	116,240	2,906	16	64,130	4,008	25	43,948	1,758	11
Umpqua	1	400	400	1	160	160	0	0	0	2	280	140	2
Wallowa-Whitman	30	7,999	267	44	84,233	1,914	7	5,142	735	24	18,863	786	51
Wenatchee	10	765	7	21	65,024	3,096	1	240	240	12	19,259	1,605	0
Willamette	1	100	100	0	0	0	1	20	20	2	120	60	0
Winema	5	563	113	13	131,125	10,087	3	5,750	1,917	6	1,420	237	6

Appendix C

Public Sheep Permit Data on National Forests, 1966

Table 35. Public sheep permit data on National Forests, 1966

Region 1 Forests	No. of permits reported	Non-temp. permits reported	No. of temp. permits reported	Total AUM's	Average AUM's	No. of permittees reporting	Total head	Average head	Ave. length of grazing season
Beaverhead	70	68	2	30,346	446	68	70,736	1,040	2.14
Bitterroot	(No sheep permits reported)								
Clearwater	5	0	5	0	0	0	0	0	0
Coeur d'Alene	1	0	1	0	0	0	0	0	0
Colville	1	1	0	988	988	1	1,250	1,250	3.95
Custer	7	6	1	1,836	306	6	2,498	416	3.68
Deerlodge	(No sheep permits reported)								
Flathead	(No sheep permits reported)								
Gallatin	35	31	4	11,076	357	31	23,400	755	2.37
Helena	13	13	0	5,478	421	13	12,197	938	2.25
Kaniksu	2	0	2	0	0	0	0	0	0
Kootenai	(No sheep permits reported)								
Lewis and Clark	21	17	4	5,590	328	17	14,160	833	1.97
Lolo	1	0	1	0	0	0	0	0	0
Nezperce	10	7	3	10,708	1,530	7	14,181	2,026	3.78
St. Joe	3	0	3	0	0	0	0	0	0

[a] Computed by subtracting non-temporary permits from permits reported.
[b] Permittees with non-temporary grazing permits.
[c] This represents the total head of sheep permitted on the forest.
[d] Computed by dividing total head by five to put in terms of animal units and dividing total AUM's by animal units.

Table 36. Public sheep permit data on National Forests, 1966

Region 2 Forests	No. of permits reported	Non-temp. permits reported	No. of temp. permits reported	Total AUM's	Average AUM's	No. of permittees reporting	Total head	Average head	Ave. length of grazing season
Arapaho	20	20	0	8,526	426	20	18,133	907	2.35
Bighorn	69	67	2	28,196	421	67	65,208	973	2.16
Black Hills	33	31	2	10,772	347	31	13,810	445	3.90
Grand Mesa	47	47	0	18,634	396	47	42,888	913	2.17
Gunnison	66	66	0	19,670	298	66	42,321	641	2.32
Medicine Bow	144	110	4	55,806	507	110	78,868	717	3.54
Nebraska	5	5	0	1,622	324	5	2,020	404	4.01
Pike	6	6	0	2,120	353	6	4,385	731	2.42
Rio Grande	92	92	0	27,812	302	92	69,991	761	1.99
Roosevelt	6	5	1	1,322	264	5	5,500	1,100	1.20
Routt	111	109	2	182,080	1,670	109	431,826	3,962	2.11
San Isabel	9	7	2	1,730	247	7	4,702	672	1.84
San Juan	104	102	2	42,680	418	102	85,433	838	2.50
Shoshone	41	41	0	15,412	376	41	45,400	1,104	1.70
White River	116	116	0	45,640	393	116	103,282	890	2.21

Table 37. Public sheep permit data on National Forests, 1966

Region 3 Forests	No. of permits reported	Non-temp. permits reported	No. of temp. permits reported	Total AUM's	Average AUM's	No. of permittees reporting	Total head	Average head	Ave. length of grazing season
Apache	2	2	0	7,574	3,783	2	6,750	3,375	5.61
Carson	115	115	0	38,472	335	115	80,484	700	2.39
Cibola	6	6	0	9,930	1,655	6	23,545	3,924	2.11
Coconino	5	5	0	14,006	2,801	5	13,450	2,690	5.21
Coronado	(No sheep permits reported)								
Gila	(No sheep permits reported)								
Kaibab	8	8	0	12,416	1,552	8	15,719	1,965	3.95
Lincoln	8	8	0	5,566	696	8	2,324	291	11.97
Prescott	(No sheep permits reported)								
Santa Fe	4	4	0	1,522	381	4	4,100	1,025	1.86
Sitgreaves	6	6	0	11,748	1,958	6	16,881	2,814	3.48
Tonto	2	2	0	12,716	6,358	2	25,588	12,794	2.48

Table 38. Public sheep permit data on National Forests, 1966

Region 4 Forests	No. of permits reported	Non-temp. permits reported	No. of temp. permits reported	Total AUM's	Average AUM's	No. of permittees reporting	Total head	Average head	Ave. length of grazing season
Ashley	71	66	5	29,920	453	66	66,893	1,014	2.24
Boise	54	54	0	50,606	937	54	107,424	1,989	2.36
Bridger	128	128	0	61,904	484	128	144,801	1,131	2.14
Cache	79	70	9	30,272	432	70	49,901	713	3.03
Caribou	136	135	1	67,338	499	135	152,817	1,132	2.20
Challis	39	36	2	21,468	596	36	41,630	1,156	2.58
Dixie	69	67	2	16,784	251	67	33,397	498	2.51
Fishlake	70	56	4	21,178	378	56	35,163	628	3.01
Humboldt	70	70	0	64,504	921	70	106,222	1,517	3.04
Manti-Lasal	319	319	0	66,098	207	319	126,603	397	2.61
Lasal	(No sheep permits reported)								
Payette	43	43	0	26,512	617	43	48,216	1,121	2.75
Salmon	9	9	0	3,486	387	9	8,380	931	2.08
Sawtooth	102	102	0	65,540	643	102	149,801	1,469	2.19
Targhee	120	120	0	46,782	390	120	104,380	870	2.24
Teton	11	11	0	6,254	569	11	12,200	1,109	2.56
Toiyabe	30	24	6	13,326	555	24	25,670	1,070	2.60
Uintah	103	102	1	52,146	511	102	93,587	918	2.79
Wasatch	56	54	2	17,538	325	54	43,448	805	2.02

Table 39. Public sheep permit data on National Forests, 1966

Region 5 Forests	No. of permits reported	Non-temp. permits reported	No. of temp. permits reported	Total AUM's	Average AUM's	No. of permittees reporting	Total head	Average head	Ave. length of grazing season
Angeles	(No sheep permits reported)								
Cleveland	(No sheep permits reported)								
Eldorado	(No sheep permits reported								
Inyo	13	7	6	3,566	509	7	8,316	1,188	2.14
Klamath	1	1	0	1,580	1,580	1	2,000	2,000	3.95
Lassen	4	2	2	448	224	2	2,600	1,300	.86
Las Padres	(No sheep permits reported)								
Mendocino	(No sheep permits reported)								
Modoc	24	22	2	19,636	893	22	46,050	2,093	2.13
Six Rivers	(No sheep permits reported)								
Plumas	12	10	2	6,754	675	10	9,867	987	3.42
San Bernardino	1	0	0	0	0	0	0	0	0
Sequoia	(No sheep permits reported)								
Shasta-Trinity	4	2	2	1,786	893	2	2,600	1,300	3.43
Sierra	(No sheep permits reported)								
Stanislaus	6	2	4	770	385	2	1,303	652	2.95
Tahoe	21	14	7	5,340	381	14	16,796	1,200	1.59

Table 40. Public sheep permit data on National Forests, 1966

Region 6 Forests	No. of permits reported	Non-temp. permits reported	No. of temp. permits reported	Total AUM's	Average AUM's	No. of permittees reporting	Total head	Average head	Ave. length of grazing season
Deschutes	20	20	0	7,906	395	20	19,960	998	1.98
Fremont	11	9	2	3,816	424	9	7,967	885	2.40
Gifford Pinchot	5	3	2	1,518	506	3	3,200	1,067	2.37
Malhuer	6	4	2	2,220	555	4	4,125	1,031	2.69
Mt. Baker									
Mt. Hood									
Ochoco	25	24	1	5,312	221	24	27,928	1,164	.95
Okanogan	13	13	0	5,888	453	13	15,355	1,181	1.92
Olympic									
Rogue Riber									
Siskiyou									
Siuslaw	2	0	2	0	0	0	0	0	0
Snoqualmie	2	2	0	892	446	2	2,070	1,035	2.15
Umatilla	12	9	3	5,706	634	9	8,988	999	3.17
Umpqua									
Wallowa-Whitman	46	45	1	38,056	848	45	59,267	1,317	3.21
Wenatchee	13	10	3	3,326	333	10	8,686	869	1.91
Willamette									
Wineam	10	5	5	2,702	540	5	4,684	937	2.88

Table 41. Livestock statistics for sheep permittees on National Forest lands, 1966

Region 1 Forests	No. of non-temp. permittees reporting	Total cattle owned	Average cattle owned	No. of non-temp. permittees reporting	Total sheep owned	Average sheep owned	No. of non-temp. permittees reporting	Total horses owned	Average horses owned
Beaverhead	68	50,577	743	68	240,739	3,540	70	3,326	48
Bitterroot	(No sheep permits reported)								
Clearwater	1	40	40	2	3,035	1,518	1	35	35
Coeur d'Alene	1	20	20	1	28	28	0	0	0
Colville	0	0	0	1	2,000	2,000	0	0	0
Custer	6	661	110	7	731	731	5	24	5
Deerlodge	(No sheep permits reported)								
Flathead	(No sheep permits reported)								
Gallatin	26	7,212	277	27	1,452	1,452	25	361	14
Helena	7	2,641	377	7	3,352	3,352	7	284	41
Kaniksu	1	130	130	2	540	540	1	10	10
Kootenai	(No sheep permits reported)								
Lewis and Clark	9	3,552	395	12	2,424	2,424	9	277	31
Lolo	0	0	0	1	4,000	4,000	0	0	0
Nezperce	1	19	19	5	2,800	2,800	5	77	15
St. Joe	1	7,000	7,000	1	7,600	7,600	1	5	5

Table 42. Livestock statistics for sheep permittees on National Forest lands, 1966

Region 2 Forests	No. of non-temp. permittees reporting	Total cattle owned	Average cattle owned	No. of non-temp. permittees reporting	Total sheep owned	Average sheep owned	No. of non-temp. permittees reporting	Total horses owned	Average horses owned
Arapaho	12	3,289	275	14	32,613	2,330	14	185	13
Bighorn	40	7,090	177	47	102,868	2,189	43	1,219	28
Black Hills	16	1,967	123	20	19,579	979	19	660	35
Grand Mesa	23	8,186	356	31	94,411	3,046	28	506	18
Gunnison	23	3,609	157	40	54,647	1,366	37	372	10
Medicine Bow	61	19,800	325	78	244,102	3,130	78	4,780	61
Nebraska	4	449	112	5	2,225	445	4	31	8
Pike	3	1,892	631	6	6,980	1,163	6	47	8
Rio Grande	46	7,608	165	63	66,838	1,061	58	432	7
Roosevelt	3	488	163	4	9,750	2,438	3	42	14
Routt	19	5,406	285	51	268,552	5,266	43	850	20
San Isabel	2	108	54	9	26,200	2,911	9	82	9
San Juan	35	8,640	247	55	125,078	2,274	53	775	15
Shoshone	18	8,628	479	28	70,395	2,514	22	418	19
White River	27	3,223	119	64	127,763	1,996	60	615	10

Table 43. Livestock statistics for sheep permittees on National Forest lands, 1966

Region 3 Forests	No. of non-temp. permittees reporting	Total cattle owned	Average cattle owned	No. of non-temp. permittees reporting	Total sheep owned	Average sheep owned	No. of non-temp. permittees reporting	Total horses owned	Average horses owned
Apache	0	0	0	2	6,966	3,483	2	6	3
Carson	46	1,881	41	61	46,435	761	52	226	4
Gibola	2	303	152	3	2,618	873	3	23	8
Coconino	0	0	0	3	17,200	5,733	3	73	24
Coronado				(No sheep permits reported)					
Gila				(No sheep permits reported)					
Kaibab	4	2,000	500	6	60,800	10,133	4	65	16
Lincoln	8	1,221	153	8	10,301	1,288	8	743	93
Prescott				(No sheep permits reported)					
Santa Fe	1	28	28	2	1,700	850	2	12	6
Sitgreaves	0	0	0	5	22,613	4,523	5	23	5
Tonto	0	0	0	2	16,207	8,104	1	32	32

Table 44. Livestock statistics for sheep permittees on National Forests, 1966

Region 4 Forests	No. of non-temp. permittees reporting	Total cattle owned	Average cattle owned	No. of non-temp. permittees reporting	Total sheep owned	Average sheep owned	No. of non-temp. permittees reporting	Total horses owned	Average horses owned
Ashley	16	2,805	175	37	93,000	2,514	36	414	12
Boise	17	6,450	379	20	99,668	4,983	18	642	36
Bridger	33	6,371	193	51	185,389	3,635	50	1,279	26
Cache	24	10,340	431	48	115,790	2,412	44	1,533	35
Caribou	37	5,557	150	68	193,595	2,847	60	889	15
Challis	20	4,187	209	22	46,234	2,102	21	316	15
Dixie	35	2,414	69	60	49,198	820	48	214	4
Fishlake	27	1,960	73	43	46,867	1,090	35	174	5
Humboldt	15	27,900	1,860	20	147,554	7,378	17	782	46
Manti-Lasal	72	8,455	117	208	143,691	691	121	3,172	26
Lasal	(No sheep permits reported)								
Payette	8	5,120	640	14	52,140	3,724	14	296	21
Salmon	5	2,290	458	6	18,150	3,025	6	146	24
Sawtooth	29	8,574	296	48	151,917	3,165	41	707	17
Targhee	45	8,528	190	61	121,316	1,989	58	745	13
Teton	2	686	343	4	32,584	8,146	4	268	67
Toiyabe	5	5,325	1,065	9	44,175	4,908	8	89	11
Uintah	29	1,570	54	61	135,231	2,217	51	501	10
Wasatch	25	3,038	122	43	126,361	2,937	39	548	14

Table 45. Livestock statistics for sheep permittees on National Forest lands, 1966

Region 5 Forests	No. of non-temp. permittees reporting	Total cattle owned	Average cattle owned	No. of non-temp. permittees reporting	Total sheep owned	Average sheep owned	No. of non-temp. permittees reporting	Total horses owned	Average horses owned
Angeles				(No sheep permits reported)					
Cleveland				(No sheep permits reported)					
Eldorado				(No sheep permits permitted)					
Inyo	2	8,700	4,350	7	66,500	9,500	2	166	83
Klamath	1	40	40	2	5,500	5,500	0	0	0
Lassen	3	345	115	3	3,400	1,133	2	5	3
Las Padres				(No sheep permits permitted)					
Mendocino				(No sheep permits permitted)					
Modoc	6	2,816	469	10	31,750	3,175	7	70	10
Six Rivers				(No sheep permits permitted)					
Plumas	4	1,975	494	7	19,280	2,754	6	47	8
San Bernardino	0	0	0	1	1,400	1,400	0	0	0
Sequoia				(No sheep permits permitted)					
Shasta-Trinity	1	500	500	2	6,000	3,000	2	10	5
Sierra				(No sheep permits permitted)					
Stanislaus	2	312	156	4	7,411	1,853	2	9	5
Tahoe	3	1,520	507	7	21,831	312	6	65	11

Table 46. Livestock statistics for sheep permittees on National Forest lands, 1966

Region 6 Forests	No. of non-temp. permittees reporting	Total cattle owned	Average cattle owned	No. of non-temp. permittees reporting	Total sheep owned	Average sheep owned	No. of non-temp. permittees reporting	Total horses owned	Average horses owned
Deschutes	4	1,215	304	5	11,400	2,280	5	58	12
Fremont	4	3,435	859	7	18,437	2,634	5	71	14
Gifford Pinchot	3	153	51	4	6,100	1,525	3	37	12
Malhuer	3	150	50	3	6,000	2,000	4	33	8
Mt. Baker				(No sheep permits reported)					
Mt. Hood				(No sheep permits reported)					
Ochoco	6	1,379	230	6	12,770	2,128	6	428	71
Okanogan	2	190	95	3	6,265	2,088	3	27	9
Olympic				(No sheep permits reported)					
Rogue River				(No sheep permits reported)					
Siskiyou				(No sheep permits reported)					
Siuslaw	2	145	145	2	700	350	2	6	3
Snoqualmie	1	100	100	2	3,125	1,563	1	5	5
Umatilla	8	404	404	9	22,334	2,482	8	95	12
Umpque				(No sheep permits reported)					
Wallowa-Whitman	9	283	283	13	33,260	2,558	13	173	13
Wenatchee	4	140	140	4	9,500	2,375	3	43	14
Willamette				(No sheep permits reported)					
Winema	4	421	421	6	27,164	4,527	5	64	13

Table 47. Commensurate land inventory for sheep permittees on National Forest lands, 1966

Region 1 Forests	No. of owners	Total cultivated acres	Ave. cultivated acres	No. of owners	Total improved pasture acres	Ave. improved pasture acres	No. of owners	Total summer range acres	Average summer range acres
Beaverhead	70	104,739	1,496	36	41,742	1,160	48	242,023	5,042
Bitterroot	(No sheep permits reported)								
Clearwater	0	0	0	0	0	0	0	0	0
Coeur d'Alene	1	8	8	0	0	0	0	0	0
Colville	1	4,000	4,000	0	0	0	0	0	0
Custer	4	2,349	587	3	810	270	3	4,770	1,590
Deerlodge	(No sheep permits reported)								
Flathead	(No sheep permits reported)								
Gallatin	28	18,244	654	11	2,615	238	17	51,581	3,034
Helena	6	4,700	783	5	1,620	324	2	46,420	23,210
Kaniksu	0	0	0	1	300	300	1	800	800
Kootenai	(No sheep permits reported)								
Lewis and Clark	9	10,767	1,196	5	3,350	670	8	41,363	5,170
Lolo	0	0	0	0	0	0	0	0	0
Nezperce	4	600	150	1	12	12	0	0	0
St. Joe	1	8,000	8,000	1	2,000	2,000	0	0	0

Table 47. Continued

Region 1 Forests	No. of owners	Total winter range acres	Average winter range acres	No. of owners	Total spring-fall range acres	Average spring-fall range acres	No. of owners	Total year-long range acres	Average year-long range acres
Beaverhead	43	177,503	4,129	66	434,584	6,584	1	1,022	1,022
Bitterroot	(No sheep permits reported)								
Clearwater	1	500	500	1	500	500	0	0	0
Coeur d'Alene	0	0	0	0	0	0	1	141	141
Colville	1	3,000	3,000	1	3,577	3,577	0	0	0
Custer	3	7,810	2,603	3	4,230	1,410	0	0	0
Deerlodge	(No sheep permits reported)								
Flathead	(No sheep permits reported)								
Gallatin	18	65,366	3,631	20	88,033	4,402	4	16,335	4,084
Helena	1	8,580	8,580	4	22,635	5,659	2	26,985	13,492
Kaniksu	1	200	200	1	200	200	0	0	0
Kootenai	(No sheep permits reported)								
Lewis and Clark	5	48,483	9,697	6	36,290	6,048	4	21,705	5,426
Lolo	0	0	0	0	0	0	0	0	0
Nezperce	4	15,717	3,929	3	7,644	2,548	1	2,343	2,343
St. Joe	0	0	0	1	22,000	22,000	0	0	0

Table 48. Commensurate land inventory for sheep permittees on National Forest lands, 1966

Region 2 Forests	No. of owners	Total cultivated acres	Ave. cultivated acres	No. of owners	Total improved pasture acres	Ave. improved pasture acres	No. of owners	Total summer range acres	Average summer range acres
Arapaho	14	12,938	924	11	5,825	530	11	37,535	3,412
Bighorn	42	16,267	387	26	4,225	163	21	51,785	2,466
Black Hills	20	4,885	244	9	2,485	276	12	20,809	1,734
Grand Mesa	28	6,204	222	26	13,728	528	14	55,881	3,992
Gunnison	38	12,459	328	33	18,610	564	16	25,991	1,624
Medicine Bow	54	153,382	2,840	15	28,470	1,898	57	447,808	7,856
Nebraska	4	1,205	301	1	20	30	2	1,860	930
Pike	6	5,880	980	4	1,752	438	3	23,419	7,806
Rio Grande	60	26,828	447	36	14,718	409	15	24,973	1,665
Roosevelt	4	2,390	598	3	13,900	4,633	3	4,460	1,487
Routt	41	21,870	533	32	24,699	772	43	216,886	5,044
San Isabel	9	1,092	121	7	11,458	1,637	7	11,320	1,617
San Juan	51	17,133	336	38	17,710	466	17	53,407	3,142
Shoshone	27	30,003	1,111	3	5,325	232	16	239,189	14.949
White River	54	16,269	301	48	22,092	460	26	43,474	1,672

Table 48. Continued

Region 2 Forests	No. of owners	Total winter range acres	Average winter range acres	No. of owners	Total spring-fall range acres	Average spring-fall range acres	No. of owners	Total year-long range acres	Average year-long range acres
Arapaho	7	6,987	998	9	21,514	2,390	1	1,000	1,000
Bighorn	15	106,519	7,101	12	13,989	1,166	16	86,981	5,436
Black Hills	21	24,138	1,149	11	18,231	1,657	1	106	106
Grand Mesa	13	25,698	1,977	22	70,760	3,216	2	10,189	5,095
Gunnison	21	30,964	1,474	23	39,990	1,739	2	5,806	2,903
Medicine Bow	65	1,276,465	19,638	22	253,574	11,526	1	10,600	10,600
Nebraska	5	5,421	1,084	1	1,276	1,276	0	0	0
Pike	0	0	0	2	5,080	2,540	0	0	0
Rio Grande	16	33,738	2,109	27	32,647	1,209	5	9,981	1,996
Roosevelt	1	2,700	2,700	3	6,780	2,260	0	0	0
Routt	25	229,170	9,167	48	333,301	6,944	1	20,000	20,000
San Isabel	0	0	0	9	14,914	1,657	0	0	0
San Juan	31	115,563	3,728	42	144,527	3,441	7	17,715	2,531
Shoshone	14	142,241	10,160	15	77,819	5,188	8	58,187	7,273
White River	27	55,463	2,054	49	148,078	3,022	1	280	280

Table 49. Commensurate land inventory for sheep permittees on National Forest lands, 1966

Region 3 Forests	No. of owners	Total cultivated acres	Ave. cultivated acres	No. of owners	Total improved pasture acres	Ave. improved pasture acres	No. of owners	Total summer range acres	Average summer range acres
Apache	1	860	860	1	80	80	1	120	120
Carson	54	11,543	214	25	6,672	267	13	27,405	2,108
Cibola	0	0	0	0	0	0	0	0	0
Coconino	0	0	0	1	420	420	3	2,639	880
Coronado	(No sheep permits reported)								
Gila	(No sheep permits reported)								
Kaibab	0	0	0	1	40	40	6	4,498	750
Lincoln	3	386	129	0	0	0	0	0	0
Prescott	(No sheep permits reported)								
Santa Fe	2	61	31	0	0	0	0	0	0
Sitgreaves	1	480	480	2	198	99	2	6,477	3,239
Tonto	0	0	0	0	0	0	0	0	0

Table 49. Continued

Region 3 Forests	No. of owners	Total winter range acres	Average winter range acres	No. of owners	Total spring-fall range acres	Average spring-fall range acres	No. of owners	Total year-long range acres	Average year-long range acres
Apache	0	0	0	0	0	0	0	0	0
Carson	19	39,933	2,102	12	11,363	947	7	16,600	2,380
Cibola	1	3,040	3,040	0	0	0	2	22,727	11,364
Coconino	0	0	0	0	0	0	0	0	0
Coronado	(No sheep permits reported)								
Gila	(No sheep permits reported)								
Kaibab	0	0	0	0	0	0	0	0	0
Lincoln	0	0	0	0	0	0	8	11,875	1,484
Prescott	(No sheep permits reported)								
Santa Fe	1	130	130	0	0	0	0	0	0
Sitgreaves	0	0	0	0	0	0	0	0	0
Tonto	1	53	53	0	0	0	1	125	125

Table 50. Commensurate land inventory for sheep permittees on National Forest lands, 1966

Region 4 Forests	No. of owners	Total cultivated acres	Ave. cultivated acres	No. of owners	Total improved pasture acres	Ave. improved pasture acres	No. of owners	Total summer range acres	Average summer range acres
Ashley	34	9,714	286	27	11,130	412	6	25,200	4,200
Boise	19	9,691	510	15	11,662	777	14	90,614	6,472
Bridger	43	22,524	524	36	18,347	510	24	37,279	1,553
Cache	41	22,083	539	26	2,700	104	21	95,230	4,535
Caribou	63	41,267	655	40	49,334	1,233	17	37,581	2,211
Challis	24	9,351	390	17	7,537	443	14	19,126	1,366
Dixie	57	6,021	106	33	6,411	194	35	46,814	1,338
Fishlake	39	5,653	145	32	3,122	98	7	17,762	2,537
Humboldt	18	26,182	1,45	18	22,729	1,263	12	171,491	14,290
Manti-Lasal	174	16,942	97	154	22,955	149	30	48,685	1,623
Lasal	(No sheep permits reported)								
Payette	9	4,995	555	7	1,440	206	4	29,958	7,490
Salmon	6	6,675	1,113	6	6,420	1,070	2	7,500	3,750
Sawtooth	47	24,882	529	38	33,650	886	23	90,727	3,945
Targhee	55	26,868	489	48	28,850	601	10	53,645	5,365
Teton	4	3,564	891	3	1,916	639	1	500	500
Toiyabe	8	11,538	1,442	6	8,677	1,446	5	34,552	6,910
Uintah	41	5,681	139	35	10,483	300	21	68,943	3,283
Wasatch	33	10,183	309	26	11,894	457	28	150,271	5,367

Table 50. Continued

Region 4 Forests	No. of owners	Total winter range acres	Average winter range acres	No. of owners	Total spring-fall range acres	Average spring-fall range acres	No. of owners	Total year-long range acres	Average year-long range acres
Ashley	4	13,050	3,263	24	94,847	3,952	6	20,167	3,361
Boise	0	0	0	19	178,025	9,370	0	0	0
Bridger	1	9,750	9,750	38	75,289	1,981	3	11,345	3,782
Cache	3	39,800	13,267	45	262,000	5,822	1	200	200
Caribou	6	24,040	4,007	48	142,097	2,960	5	5,399	1,080
Challis	4	1,417	352	14	24,543	1,753	1	762	762
Dixie	16	13,154	822	34	44,141	1,298	1	80	80
Fishlake	8	17,265	2,158	22	50,046	2,275	7	1,283	183
Humboldt	6	100,493	16,749	15	223,395	14,893	4	6,012	1,503
Manti-Lasal	25	15,708	628	151	190,933	1,264	25	3,356	134
Lasal	(No sheep permits reported)								
Payette	8	30,999	3,875	10	80,414	8,041	1	7,500	7,500
Salmon	1	6,000	6,000	3	23,160	5,790	1	475	475
Sawtooth	4	14,858	3,715	34	125,434	3,689	1	1,160	1,160
Targhee	4	15,017	3,754	47	221,574	4,714	1	10	10
Teton	2	14,873	7,437	4	30,007	7,502	0	0	0
Toiyabe	5	55,795	11,139	5	16,258	3,252	2	8,500	4,250
Unitah	8	38,763	4,845	54	273,841	5,071	2	6,900	3,450
Wasatch	15	105,107	7,007	37	176,971	4,783	1	1,712	1,712

Table 51. Commensurate land inventory for sheep permittees on National Forest lands, 1966

Region 5 Forests	No. of owners	Total cultivated acres	Ave. cultivated acres	No. of owners	Total improved pasture acres	Ave. improved pasture acres	No. of owners	Total summer range acres	Average summer range acres
Angeles	(No sheep permits reported)								
Cleveland	(No sheep permits reported)								
Eldorado	(No sheep permits reported)								
Inyo	5	12,807	2,561	3	5,540	1,847	4	51,310	12,828
Klamath	1	7,450	7,450	1	650	650	0	0	0
Lassen	2	310	155	1	30	30	2	1,465	733
Los Padres	(No sheep permits reported)								
Mendocino	(No sheep permits reported)								
Modoc	9	7,822	869	6	6,576	1,096	7	10,295	1,471
Six Rivers	(No sheep permits reported)								
Plumas	4	5,770	1,443	4	6,410	1,603	3	22,690	7,563
San Bernardino	0	0	0	0	0	0	0	0	0
Sequoia	(No sheep permits reported)								
Shasta-Trinity	2	2,420	1,210	0	0	0	1	3.040	3,040
Sierra	(No sheep permits reported)								
Stanislaus	3	193	64	3	331	110	1	3,195	3,195
Tahoe	2	3,500	3,500	2	150	75	5	19,153	3,831

Table 51. Continued

Region 5 Forests	No. of owners	Total winter range acres	Average winter range acres	No. of owners	Total spring-fall range acres	Average spring-fall range acres	No. of owners	Total year-long range acres	Average year-long range acres
Angeles				(No sheep permits reported)					
Cleveland				(No sheep permits reported)					
Eldorado				(No sheep permits reported)					
Inyo	1	1,100	1,100	1	100,000	100,000	0	0	0
Klamath	1	2,100	2,000	0	0	0	0	0	0
Lassen	3	4,559	1,520	1	1,552	1,552	0	0	0
Los Padres				(No sheep permits reported)					
Mendocino				(No sheep permits reported)					
Modoc	3	2,842	947	5	19.051	3,810	0	0	0
Six Rivers				(No sheep permits reported)					
Plumas	5	9,298	1,860	1	4,560	4,560	0	0	0
San Bernardino	0	0	0	0	0	0	0	0	0
Sequoia				(No sheep permits reported)					
Shasta-Trinity	0	0	0	0	0	0	0	0	0
Sierra				(No sheep permits reported)					
Stanislaus	4	10,414	2,604	2	7,632	3,816	0	0	0
Tahoe	6	15,668	2,611	2	11,837	5,919	0	0	0

Table 52. Commensurate land inventory for sheep permittees on National Forest lands, 1966

Region 6 Forests	No. of owners	Total cultivated acres	Ave. cultivated acres	No. of owners	Total improved pasture acres	Ave. improved pasture acres	No. of owners	Total summer range acres	Average summer range acres
Deschutes	5	6,435	1,287	3	716	239	1	100	100
Fremont	6	7,621	1,270	5	2,165	433	5	8,490	1,698
Gifford Pinchot	2	580	290	2	212	106	0	0	0
Malhuer	4	533	133	3	1,118	373	2	500	250
Mt. Baker	(No sheep permits reported)								
Mt. Hood	(No sheep permits reported)								
Ochoco	5	2,760	552	3	1,800	600	3	26,750	8,917
Okanogan	3	1,792	597	0	0	0	1	640	640
Olympic	(No sheep permits reported)								
Rogue River	(No sheep permits reported)								
Siskiyou	(No sheep permits reported)								
Siuslaw	2	1,090	545	0	0	0	0	0	0
Snoqualmie	2	2,120	1,060	1	63	63	0	0	0
Umatilla	7	21,900	3,129	6	1,050	175	7	44,221	6,317
Umpqua	(No sheep permits reported)								
Wallowa-Whitman	13	32,376	2,490	7	798	114	4	28,929	7,232
Wenatchee	4	3,440	860	2	4,100	2,050	0	0	0
Willamette	(No sheep permits reported)								
Winema	5	6,891	1,378	3	430	143	3	3,430	1,143

Table 52. Continued

Region 6 Forests	No. of owners	Total winter range acres	Average winter range acres	No. of owners	Total spring-fall range acres	Average spring-fall range acres	No. of owners	Total year-long range acres	Average year-long range acres
Deschutes	4	26,000	6,500	5	31,614	6,323	2	31,000	15,500
Fremont	0	0	0	6	31,156	5,193	1	14	14
Gifford Pinchot	2	3,437	1,719	2	4,228	2,114	0	0	0
Malhuer	0	0	0	4	11,261	2,815	0	0	0
Mt. Baker	(No sheep permits reported)								
Mt. Hood	(No sheep permits reported)								
Ochoco	1	4,000	4,000	4	20,887	5,222	1	45,400	45,400
Okanogan	1	1,220	1,220	3	10,360	3,453	0	0	0
Olympic	(No sheep permits reported)								
Rogue River	(No sheep permits reported)								
Siskiyou	(No sheep permits reported)								
Siuslaw	0	0	0	0	0	0	1	359	359
Snoqualmie	1	4,000	4,000	2	7,600	3,800	0	0	0
Umatilla	4	46,817	11,704	5	47,622	9,524	0	0	0
Umpque	(No sheep permits reported)								
Wallowa-Whitman	7	43,133	6,162	8	37,033	4,629	3	11.065	3,688
Wenatchee	1	4,000	4,000	3	24,750	8,250	0	0	0
Willamette	(No sheep permits reported)								
Winema	2	2,480	1,240	4	17,153	4,288	0	0	0

Table 53. Inventory of acres leased by Forest Service sheep permittees, 1966

Region 1 Forests	No. of owners[a]	Total cultivated acres leased[b]	Ave. cultivated acres leased	No. of owners	Total summer range leased[b]	Average summer range leased	No. of owners[a]	Total winter range leased[b]	Average winter range leased	No. of owners[a]	Total spring-fall range leased[b]	Average spring-fall range leased
Beaverhead	10	5,087	509	28	85,162	3,042	8	27,180	3,398	43	322,706	7,505
Bitterroot	(No sheep permits reported)											
Clearwater	0	0	0	0	0	0	0	0	0	1	45,000	45,000
Couer d'Alene	0	0	0	0	0	0	0	0	0	1	40	45
Colville	0	0	0	0	0	0	0	0	0	1	3,285	3,285
Custer	1	329	329	2	1,120	560	2	3,640	1,820	2	3,213	1,607
Deerlodge	(No sheep permits reported)											
Flathead	(No sheep permits reported)											
Gallatin	4	667	167	8	10,436	1,305	8	14,788	1,859	8	16,491	2,061
Helena	2	2,050	1,025	3	18,700	6,233	1	990	990	2	3,640	1,820
Kauiksu	0	0	0	0	0	0	2	8,300	4,150	2	7,320	3,660
Kootenai	(No sheep permits reported)											
Lewis and Clark	2	150	75	6	13,710	2,285	6	8,272	1,379	3	2,520	840
Lolo	0	0	0	1	25,000	25,000	1	25,000	25,000	1	25,000	25,000
Nezperce	0	0	0	1	1,280	1,280	3	5,320	1,773	3	13,200	4,400
St. Joe	1	540	540	1	45,000	45,000	0	0	0	1	6,500	6,500

[a] Permittees with non-temporary grazing permits reporting various types of leased land.
[b] Amount of land reported leased by permittees for different types of land classification.

Table 54. Inventory of acres leased by Forest Service sheep permittees, 1966

Region 2 Forests	No. of owners	Total cultivated acres leased	Ave. cultivated acres leased	No. of owners	Total summer range leased	Average summer range leased	No. of owners	Total winter range leased	Average winter range leased	No. of owners	Total spring-fall range leased	Average spring-fall range leased
Arapaho	4	1,800	450	7	29,140	4,163	2	3,789	1,895	4	22,880	5,720
Bighorn	8	1,010	126	11	36,240	3,295	14	57,780	4,127	16	58,245	3,640
Black Hills	2	600	300	5	5,296	1,059	9	16,061	1,785	6	14,320	2,387
Grand Mesa	6	884	147	15	79,148	5,277	15	100,780	6,719	10	20,878	2,088
Gunnison	9	1,629	181	5	8,290	1,658	11	24,120	2,193	5	6,102	1,220
Medicine Bow	5	37,239	7,446	41	113,884	2,778	42	407,172	9,695	15	77,949	5,197
Nebraska	0	0	0	0	0	0	0	0	0	1	640	640
Pike	0	0	0	3	7,113	2,371	1	617	617	2	3,343	1,672
Rio Grande	16	4,042	253	12	10,288	857	11	35,544	3,231	16	43,100	2,694
Roosevelt	1	80	80	3	13,660	4,553	1	2,420	2,420	1	3,500	3,500
Routt	9	7,371	819	22	107,950	4,907	18	118,831	6,602	31	155,178	5,006
San Isabel	4	1,600	400	4	46,680	11,670	4	82,100	20,525	3	7,234	2,411
San Juan	11	2,159	196	8	41,640	5,205	27	120,510	4,463	21	47,960	2,284
Shoshone	2	195	98	11	322,425	29,311	15	144,057	9,604	21	180,271	8,584
White River	11	3,771	343	13	33,261	2,559	20	149,222	7,461	24	36,846	1,535

Table 55. Inventory of acres leased by Forest Service sheep permittees, 1966

Region 3 Forests	No. of owners	Total cultivated acres leased	Ave. cultivated acres leased	No. of owners	Total summer range leased	Average summer range leased	No. of owners	Total winter range leased	Average winter range leased	No. of owners	Total spring-fall range leased	Average spring-fall range leased
Apache	2	1,460	730	0	0	6	0	0	0	0	0	0
Carson	15	3,581	239	2	1,565	782	14	31,605	2,258	9	10,120	1,124
Cibola	0	0	0	0	0	0	0	0	0	0	0	0
Coconino	1	3,000	3,000	2	25,177	12,589	1	2,000	2,000	0	0	0
Coronado	(No sheep permits reported)											
Gila	(No sheep permits reported)											
Kaibab	2	6,000	3,000	2	80,000	40,000	1	20,000	20,000	2	18,760	9,380
Lincoln	0	0	0	0	0	0	0	0	0	3	11,480	3,827
Prescott	(No sheep permits reported)											
Santa Fe	0	0	0	0	0	0	0	0	0	0	0	0
Sitgreaves	4	9,260	2,315	0	0	0	2	8,000	4,000	0	0	0
Tonto	0	0	0	0	0	0	0	0	0	0	0	0

Table 56. Inventory of acres leased by Forest Service sheep permittees, 1966

Region 4 Forests	No. of owners	Total cultivated acres leased	Ave. cultivated acres leased	No. of owners	Total summer range leased	Average summer range leased	No. of owners	Total winter range leased	Average winter range leased	No. of owners	Total spring-fall range leased	Average spring-fall range leased
Ashley	6	1,136	189	9	27,360	3,040	16	164,603	10,288	16	105,190	6,574
Boise	1	60	60	7	66,142	9,449	1	2,400	2,400	16	165,761	10,360
Bridger	9	3,800	422	19	30,959	1,629	5	31,820	6,364	29	122,228	4,215
Cache	10	2,867	287	13	62,615	4,817	11	81,153	7,378	19	38,485	2,026
Caribou	17	9,088	535	16	40,007	2,500	7	31,920	4,560	33	176,914	5,361
Challis	2	160	80	9	16,180	1,798	2	5,400	2,700	9	16,840	1,871
Dixie	7	997	142	11	9,392	854	13	16,742	1,288	14	17,002	1,214
Fishlake	6	322	54	8	2,810	351	11	26,420	2,402	12	18,120	1,510
Humboldt	0	0	0	1	12,660	12,660	0	0	0	0	0	0
Manti-Lasal	25	2,559	102	16	45,953	2,872	17	60,966	3,586	50	74,977	1,500
Lasal	(No sheep permits reported)											
Payette	1	500	500	11	70,534	6,412	6	18,166	3,028	6	14,121	2,354
Salmon	1	16	16	3	4,380	1,460	2	9,260	1,480	3	9,240	3,080
Sawtooth	11	4,573	416	15	65,105	4,340	4	6,180	1,545	23	117,493	5,108
Targhee	11	3,097	282	5	29,844	5,969	0	0	0	41	143,088	3,490
Teton	1	200	200	1	320	320	1	1,020	1,020	2	24,258	12,129
Toiyabe	2	120		4	935,953	233,988	2	11,456	5,728	3	15,920	5,307
Uintah	11	11,416	1,038	16	38,335	2,396	20	103,424	5,171	26	122,240	4,702
Wasatch	13	81,645	6,280	17	66,597	3,917	9	34,410	3,823	21	121,663	5,793

Table 57. Inventory of acres leased by Forest Service sheep permittees, 1966

Region 5 Forests	No. of owners	Total cultivated acres leased	Ave. cultivated acres leased	No. of owners	Total summer range leased	Average summer range leased	No. of owners	Total winter range leased	Average winter range leased	No. of owners	Total spring-fall range leased	Average spring-fall range leased
Angeles	(No sheep permits reported)											
Cleveland	(No sheep permits reported)											
Inyo	2	7,500	3,750	2	5,570	2,785	1	5,000	5,000	4	86,160	21,540
Klamath	0	0	0	0	0	0	1	7,000	7,000	0	0	0
Lassen	1	50	50	3	50,509	16,836	2	2,900	1,450	1	150	150
Los Padres	(No sheep permits reported)											
Mendocino	(No sheep permits reported)											
Modoc	2	1,500	750	2	2,400	1,200	5	73,048	14,610	2	20,000	10,000
Six Rivers	(No sheep permits reported)											
Plumas	2	240	120	5	58,823	11,765	3	17,676	5,892	3	46,700	15,567
San Bernardino	0	0	0	0	0	0	0	0	0	1	7,480	7,480
Sequoia	(No sheep permits reported)											
Shasta-Trinity	1	481	481	0	0	0	1	6,900	6,900	1	820	820
Sierra	(No sheep permits reported)											
Stanislaus	0	0	0	0	0	0	0	0	0	1	426	426
Tahoe	2	640	320	3	40,418	13,473	6	42,786	7,131	3	13,800	4,600

Table 58. Inventory of acres leased by Forest Service sheep permittees, 1966

Region 6 Forests	No. of owners	Total cultivated acres leased	Ave. cultivated acres leased	No. of owners	Total summer range leased	Average summer range leased	No. of owners	Total winter range leased	Average winter range leased	No. of owners	Total spring-fall range leased	Average spring-fall range leased
Deschutes	1	50,436	50,436	1	2,760	2,760	0	0	0	2	18,603	9,302
Fremont	3	3,110	1,037	3	70,900	23,633	2	16,500	8,250	2	19,800	9,900
Gifford Pinchot	1	160	160	2	65,000	32,500	4	140,870	35,218	2	90,592	45,296
Malheur	0	0	0	1	300	300	0	0	0	0	0	0
Mt. Baker												
Mt. Hood												
Ochoco	1	80	80	0	0	0	0	0	0	3	23,555	7,852
Okanogan	1	50,000	50,000	1	360	360	0	0	0	3	53,560	17,853
Olympic												
Rogue River												
Siskiyou												
Siuslaw	1	112	112	1	100	100	0	0	0	1	40	40
Snoqualmie	0	0	0	0	0	0	1	640	640	2	11,240	5,620
Umatilla	4	1,857	464	5	111,000	22,200	5	63,300	12,660	2	7,070	3,535
Umpqua												
Wallowa-Whitman	3	712	237	3	6,475	2,158	1	1,500	1,500	5	3,897	779
Wenatchee	1	160	160	1	47,240	47,240	3	46,080	1,536	2	75,000	37,500
Willamette												
Winema	2	1,310	655	3	186,000	62,000	2	37,000	18,500	2	25,300	12,650

VITA

Barton Frank Bailey

Candidate for the Degree of

Master of Science

Thesis: An Analysis of Forest Service Grazing Statistics and a Case Study of Public Grazing in Rich County, Utah

Major Field: Agricultural Economics

Biographical Information:

Personal Data: Born at Pocatello, Idaho, March 13, 1945, son of Frank L. and Fay Bailey; married Patricia Johnson, July 15, 1964; one child--Marlys.

Education: Attended elementary school in Groveland, Idaho; graduated from Blackfoot High School, Blackfoot, Idaho, in 1963; received the Associate of Science degree from Ricks College, Rexburg, Idaho, in June 1965; and received the Bachelor of Science degree from Utah State University, Logan, Utah, in June, 1967; with a major in Agricultural Economics.