A Range Survey and Management Plan
for the Grazing Areas
on the McDonald Forest
by
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In Partial Fulfillment
of the Requirements for the Degree
Bachelor of Science
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Approved:

Professor of Forestry
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Introduction

A. Purpose of Study

This report consists of a range survey of the grazing land on the McDonald Forest, situated north of Corvallis and owned and operated by the School of Forestry at Oregon State College. In this survey an attempt is made to evaluate the range land on the forest in relation to the number of sheep that can be run under proper range management. The survey includes a comprehensive type map of the area, showing all cultural and physical features, and an intensive range examination from which density, composition, and character of forage was determined.

The object of a range survey is to secure in a practical manner, the fullest and most up-to-date information in connection with the use and administration of the range for such purposes as livestock production, watershed protection, and other legitimate demands. It is for the purpose of obtaining these basic facts, analyzing the various problems, and from them developing a comprehensive plan for managing the resources that this range survey was conducted. The completed plan of range management will show what the range resources are on this particular area, their physical condition, their relation to other resources, and how these resources may best be utilized, developed, and improved.
B. Importance of the Problem

The work conducted on this range survey is of value to the School of Forestry at Oregon State College and to all persons owning or operating range land which is comparable to the range land on the McDonald Forest. This survey gives a picture of the grazing land on the forest and its relative value to the school for the production of sheep. As the Willamette Valley has thousands of acres of such lands--open south hillsides that are not tillable but are of value as pasture land--some effort should be made to evaluate these lands in a fair and scientific manner. No one has heretofore studied the value of these lands in any detail. It has always been just a rough estimate as to their carrying capacity.

There are no great expanses of open grass lands on the west side of the Cascade Range as there are on the east. The range land on the west side of the Cascades is broken up into small patches with an overabundance of brush and timber. For that reason, range surveys are much more complicated, as the types are much smaller and varied. That also explains the fact that so little study has been made of the range land on the west side of the Cascades. These patchy hillside pastures are an important part of our natural resources and should be looked after and studied just as well as the great prairies found on the east side. Some thought should be given to these Willamette Valley ranges immediately, as misuse has already changed many of the once fer-
tile grass pastures to a weed range with the rich top soil slowly washing to the valleys below.

C. Source of Data

The training and background which enabled the writer to make this survey and proposed management plan was gained through several courses in Range Management taken at Oregon State College, three summer's work on government range survey crews, and a general knowledge of livestock acquired while being reared on a ranch in Eastern Oregon.

A list of references will be found in the bibliography of this report, but as very little work of study has been made on the Willamette Valley ranges, it was extremely difficult to find any reliable sources of published facts on the problem.

Since the literature on the problem was limited, it was necessary to consult the advice and opinion of several men in the field of Range Management and Livestock Production who, through their experiences and individual studies, could lend a very valuable amount of information to the problem. The following men were consulted: R. G. Johnson, Head of Range Management at Oregon State College; Blaine Devers, A. A. A. State Range Examiner; W. T. McLaughlin, Associate Agronomist of the U. S. Soil Conservation Service; W. B. Rodenwald, Professor of Animal Husbandry at Oregon State College; W. J. Pickford, U. S. F. S. Range Experiment Station; Ed. Averill, County Agricultural Agent of Benton County; Roland Parker, County Agricultural Agent of Doug-
las County; Professor Lawerance, Ecologist at Oregon State College; Dean George W. Peavy, Dean of the School of Forestry at Oregon State College; H. E. Shirley, owner of sheep on the McDonald Forest; Ed. Witham and F. G. McFadden, sheep men in the county.

D. Method of Procedure

1. Field Work

As a type map was partially completed, the field work on this study was somewhat decreased. The N. Y. A. boys, during the school year of 1939-1940, started the type map and had the drainages, physical features, culture, and the main types in fine shape. However, it was necessary for the examiner to go over the entire area and break the large, general types down into their specific types. These smaller specific types were recognized by a thorough sampling of each type and by the recording of all data as to density, composition, and aspect of the forage. A total of nineteen different sample areas were taken and are shown on the map which accompanies this paper. The field sheets showing in detail the forage on each type are enclosed within the appendix of this paper. These field sheets, filled out for each sample area, show exactly what the density, composition, species, and type of forage is on that particular sample area. They also give the acreage of that type and its estimated carrying capacity; it also gives a description of soil conditions, rodent presence, poisonous plants, legal description of land, and general remarks as to the relative
condition of that specific part of the range.

The reconnaissance method of range survey was used as it proved the most practicable and could be adapted to the situation very easily. As a type map was already completed of the area, it was only necessary for the examiner to go into the field and thoroughly sample each individual type. Passing through the type, the examiner would jot down notes as to density and composition changes in order to better analyze the type average and aid in his mental calculations to be drawn up at the end of his reconnaissance.

The first estimation made was the per cent of density of the forage making up the type. In estimating density, the composition as a whole was given a density rather than each individual species. The density of the more-or-less upright plants was based upon the amount of ground that appeared covered when the vegetation was viewed from above. In estimating the density of spreading plants, browse, and open clumps of grass, this forage was pressed together or raised at an angle so that all the normal interstices between the leaves were completely filled without compressing or unduly crowding the vegetation. The forage so compressed represents ten-tenths density or one hundred per cent. It is then the duty of the examiner to judge what per cent of the total ground surface is covered with forage, and that per cent is the density per cent shown on the field sheets under the heading "Average Density." (13)

All density estimates were made on a normal year's growth. As this seemed to be a normal year, by all indica-
tions, no adjustment of the actual density figure was necessary. The density estimate of shrubbery or browse consisted of the current year's growth and the leafage on the plant within the reach of the livestock. Trunks, heavy branches, and the interior of dense clumps are not included in the density per cent. Where a double story of vegetation existed, such as browse over grass, the judging of each story was done separately. Both stories are included in the final density estimate, however.

Care was taken at all times to see that the density estimate was representative of the sample and was a true average density of the type as a whole.

The second estimation was the breaking down of the type composition into grasses, weeds, and browse. The type composition estimates are based on the relative density or abundance of each available vegetative species in the type. The examiner did not write up his type composition until he had seen a very good sample of the entire type. The plants, as they were observed, were written on the field sheets under their respective headings--grass, weeds, or browse.* A percentage is given each species found under each group, and the sum of the percentage ratings for the individual species should equal the total per cent of the total given to that group. The total of the percentages given to the three groups--grass, weeds, and browse--should always equal one hundred per cent. In determining composition, the examiner rated each species in accordance to his best judgment as to its individual abundance with relation to the total plant.

* Appendix
cover. In the interest of obtaining uniformity among the different samples, the composition breakdown of the different types always started with the most abundant species and rated each lesser species in its turn. Such a rating scheme should result in a definite expression of relative abundance. Abbreviations were used on the field sheets to save time and space. A list of all the species found on the range and appearing on these field sheets are listed in the appendix of this report, showing their abbreviations, common name, scientific name, and palatability. (13)

The last piece of field work was to determine the forage acre requirement. It is a very important element of range surveys; it represents the number of forage acres necessary to provide for one animal for one month. This developed into quite a problem, as no forage acre requirement had been set up for the Willamette Valley ranges. After consulting several of the men listed at the beginning of this paper, it was decided that we must find a range that is comparable to the McDonald Forest where actual records have been kept. The Ed. Witham ranch, located northwest of Corvallis, on Oak Creek, very close to the McDonald Forest, was selected as the ranch to use. Mr. Witham kept close record for the past several years on the average number of sheep grazed on this area, and this area is not overgrazed.

First an intensive examination was made of his range to make sure that the forage and soil, etc., were comparable to the range we wished to compare it with. A range survey was made of this range exactly as was made of the McDonald
Forest, to estimate the density and composition as accurately as possible; then the figures representing this were divided by the average number of animal months per year which had been grazed on the ranching unit during the past period of years. The result was the forage acre requirement figure (.2 forage acres per animal a month).

In more easily understood terms, it requires about two acres per sheep per year (12 months), that is, on the best land, and on the poorer bushy land, it will run up as high as five or six acres per sheep per year. One animal unit is equal to one cow or horse or five sheep; consequently the better land runs about ten or twelve acres per animal unit. (See Fig. 2, page )

Summarizing what we have accomplished so far, there is a detailed type map of the area showing boundaries, physical features, culture, and types; in addition, field data for each type, showing subtypes, density estimation, composition breakdown, and a reliable forage acre requirement figure. Each open area was sampled and a type and subtype given to it so that its acre and growing capacity could be calculated. Each of the timber, brush, and broadleaf types were not visited separately, but enough of them were sampled so that a representative average could be determined for the total of those types.

2. Office Work

With the above-gathered data, the office work was started. The office work consisted of first drawing in the sub-
type lines on the large eight-inches-to-the-mile master map of the area. This was followed by calculating the acreages of each of the nineteen sample areas, a planimeter being used to find these acreages. The acreages calculated above were written on the field sheets in the proper place, so that the forage acres could be determined at a later date.

In order to find the estimated grazing capacity of the area, it is necessary to know the relative palatability of each species found on the range. W. J. Pickford of the U. S. Forest and Range Experiment Station at Portland, Oregon, was generous enough to donate the proper palatability table. This table will be found in the appendix of this report. This table is not perfect in all regards, but it was the best and only one available. For example, St. Johns Wort is rated with a zero palatability, while we know from actual experience that the sheep will eat this to some extent, and the range will be properly utilized; that is, they are not being starved to it. (13)

Palatability is defined as being the per cent of the total current year's growth, within reach of livestock, to which a species is grazed when the range unit is properly utilized under the best range management. The rating given each species on this palatability table for sheep is multiplied by the composition rating given that particular species on the field sheet. The sum of all the individual products obtained in the above explained matter yields the weighted average palatability of the type or sample area. This figure, the weighted average palatability, is multiplied by the
estimated average density of the type, the result being the forage acre factor or palatable density of the type; therefore the forage acre factor is the sum of the products of the density times the per cent of palatability of the species. For further explanation see the field sheet in the appendix of this report.

The forage acre factor is multiplied by the surface acres in the sample and gives the total number of forage acres in the sample. The forage acre may be defined as a theoretical acre of land covered entirely with palatable forage. The nearest approach to this would be a dense blue-grass lawn.

The number of forage acres is then divided by the forage acre requirement, and the resultant figure is the grazing capacity of the area in animal months. The forage acre requirement may be defined as the number of forage acres necessary to provide feed for one head of livestock for one month, and can be expressed for sheep, goats, cattle, or horses. The number of animal months is divided by twelve, which gives the carrying capacity in animal units. An animal unit is the amount of forage necessary to keep a cow or horse for twelve months of grazing. One animal unit is equal to one cow or five sheep. (13)

It so happened that the range yielded a total of 647 animal months or fifty-four animal units which is equal to 270 sheep. This is on a twelve month's basis, and if the sheep are taken off the forest for part of the year, more sheep can be run for the shorter period.
E. Classification of Forage Types

1. Type Designations

Types are indicated on the map by proper type numbers followed by a standard symbol to indicate the dominant species. Types containing a timber overstory will carry the principal timber species symbol after the type number. The governing rule followed was that the number and symbols would give an accurate picture of the principal species.

Types were designated according to aspect. The conspicuous or most predominating species governed the type number, followed by the abbreviation of the most important species in the type. The symbols used for all species of herbaceous vegetation are shown on the palatability table which will be found in the appendix of this report.

2. Type Descriptions

Type 1, colored a light yellow on the map, is a grassland type. Perennial grasses predominate and determine the aspect, although some weeds and browse were present. These types, as the map will show, exist only on the high ridges where grazing has not been so hard in past years. This was the climax stage for all of the open areas with Idahoensis, Idaho Fescue, the predominant species, followed by wheat grass, Agropyrons. These areas were showing signs of encroachment of perennial and annual weeds—St. Johns Wort and Braken Fern. Much rodent control is needed, but most of the grass types have fine soil-holding qualities.

Type 2, colored orange on the map, consisted of meadow
land, clovers, timothy, orchard grass, sedge, and rushes dominating the type. This type, located in Section 16 along Jackson Creek, is quite wet during most of the year, but it becomes dry in the summer months of July and August and has little value ten as pasture. Possibilities of plowing this area and reseeding to good meadow grasses and legumes is very good; also the installation of an irrigation system would be a great asset to the property.

Type 3, colored red on the map, is a type consisting of perennial weeds or forbs. This type includes all untimbered areas where perennial weeds predominate over other classes of vegetation. As most of the forage on the McDonald Forest is composed of weeds, type 3 carries the greatest amount of surface acre and requires about 3 acres per sheep per year.

The predominating perennial weed on the forest is the St. Johns Wort—Hypericum perforatum. This weed is present on much of the range land of Western Oregon and has reduced the carrying capacity of many ranges by choking out the more palatable grasses. The plant thrives in hot weather and produces very viable seeds which mature late in the fall. It likes acid soils, is drought resistant, and tends to crowd out other plants on thin soils and on soils of low moisture-holding capacity. This weed is found on all open areas on the McDonald Forest, some places being worse than others. The plant reproduces by underground stems or runners, which shoot up at intervals. It is very hard to kill.

The sheep eat the plant early, when it is very young
and succulent, and although it is poisonous at later stages in its growth, no poisoning was found among any of the sheep pastured on the forest.

The weed can be controlled by chemical treatment, but at present the procedure would be too expensive. If possible, the badly infested areas should be plowed and planted to good sod-forming grass which will keep out the St. Johns Wort.

Overgrazing is probably one of the principal factors that allowed St. Johns Wort to come out on the range in the past few years. With well managed grazing, the weed can be eliminated by the better sod-forming grasses which reproduce and naturally crowd out the weed.

In Douglas County, Oregon, the sheepmen have found that by grazing with either sheep and goats, the St. John Wort has been killed out in every case. Cattle will not touch the weed, but sheep and goats will eat it in its succulent stage. J. Roland Parker, County Agent of Douglas County states, "Where sheep and goats have killed out the St. Johns Wort, I do not believe the area was overgrazed or in any way damaged. We find that if sheep and goats are taken off these areas for a period of several years, St. Johns Wort again comes in and infests the area. We also find that with the sod-forming bent grasses, the weed will not thrive and will be crowded out by the better sod-forming grasses."

The perennial weed of next importance is the Braken Fern—Pteridium aquilinum. This also is a poisonous plant, but no cases were found on the McDonald Forest. The sheep do not eat this plant at any stage of its growth, and it is only a menace and a fire hazard to the range. A good stand of grass will keep the fern out, but in one or two spots the
fern is so thick that the grass cannot get started. These areas are shown on the map as (3-Paq) and should be plowed and seeded to good sod-forming grass as advocated in this report under pasture reseeding.

Other weeds making up the perennial weed type are the plantain (Plantago lanciolata), strawberry (Fragaria), and Canadian Thistle (Cirsium arvense). A considerable number of grasses can be found among the weeds, and care should be taken not to overgraze this type, because if the grasses are totally killed, weeds will constitute the forage and thus reduce palatability and carrying capacity. By a study of field sheets taken in this type, one can easily see the breakdown of forage classes and the different species in each class. If these grasses are allowed to mature, they will produce enough seed to reseed the area, and in time will eliminate the weeds.

This type is also troubled with considerable Sweet Briar. Sweet Briar is of no value as a forage plant and takes the moisture, soil nutrients, and ground surface that should go to the grasses. For that reason some measure should be taken in the future to grub out these Sweet Briar bushes and thus create more grazing area and a higher carrying capacity. This would be a good project for the Civilian Conservation Corp or the N. Y. A. boys in the future.

Type 5, colored olive green on the map, and consisting of browse and shrub, includes all untimbered land where browse is the main aspect to type or is the predominant vegetation.
This type is made up of a great number of different browse species, with some understory of grass and weeds. The average density of this type would be very high due to the very dense clumps or thickets of brush, but it must be remembered that density is judged only on forage within reach of livestock, and much of this brush is too dense for sheep to reach. Another important item, the amount of wool lost in the brushy types, amounts to considerable more than would be anticipated.

The predominant browse is Poison Oak (Rhus diversiloba) which has no palatability and is a very obnoxious plant. It has no worth as a grazing plant and should be eliminated from the range if it is economically possible.

Among other browse plants of value to livestock are Thimbleberry (Rubus parvi florus), Blackberry (Rubus macro-petalus), and Ocean Spray (Sericotheca discolor)—one of the most important.

Although sheep are characteristically a browse-eating animal, they do not begin to control the browse on this range. It might be well to add a few goats to the range to help keep the brush from spreading to the open grassland type.

Type 7 (waste), colored blue-green, includes all areas of dense timber and brush which have no value for livestock, or which have such slight value that they cannot be used economically, owing either to denseness of standing timber or sparseness of forage growth. Large areas of very sparse forage are classified as waste because of the impracticability
of running livestock on so large an area to get such a small amount of food. There are no areas of barren or extremely rough or inaccessible range on the forest. The main timber species are the Douglas Fir, White Fir, and a small amount of Oregon Oak and Oregon Maple mixed with the conifers. The Douglas Fir grows in such dense stands that forage cannot survive beneath it. Trails exist so that sheep can trail to the open areas and better grazing lands.

Type 10 (Broadleaf trees), colored pink on the map, includes all range where deciduous timber predominates. This type is found both along the water courses and along some of the ridge tops. The grazing capacity of the type varies considerably between the ridges and creek bottoms. Along the creeks, a good mixture of grass and browse predominates under the broad leaf trees which consist mainly of Alder, Maple, Oak, and Madrona. On the ridge tops the soil becomes very dry in summer. There is hardly any forage at all beneath the overstory which is largely Oak and Maple. These areas are designated on the map and type sheets, separate type sheets being made for each area to show the great difference in subtypes and grazing capacity.
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CHAPTER I

SOIL CONDITIONS

As the soil on the south grassy slopes of the forest is very thin, there is only a small amount of fertile top soils to support the stand of grass and weeds. This thin rocky soil dries out quickly and washes easily due to the heavy rainfall of the Willamette Valley. Because of this, care should be taken not to graze those steep slopes too heavily, and to always have a good cover of sod forming grass to hold what little soil there is for future generations.

The soils on the hill land in the Willamette Valley are described as Olympic soils by W. L. Powers and E. F. Torger-son of the Oregon Agriculture Experiment Station. These soils are red loams, reddish-brown soil on a red sticky sub-soil or basalt. Like all hill soils there is a variation in depth and slope. These rather heavy textured soils are usually well-drained and do not erode easily, thus permitting the grazing of livestock early in the spring. The reaction of the Olympic soil is distinctly acid. Available phosphate is low, calcium is low, and organic matter moderate in amount and adapted to the growing of either grass or forest trees. As some of the slopes are rather steep, care should be taken not to graze these slopes too heavily or to go on when they are too soft.

Refering to Figure 1, it is easy to see also that with a good grass cover absorption is very high and run-off and erosion is held at a very low figure. The perennial weeds
show a much higher degree of run-off and erosion; therefore we should strive for a cover of grass with as few weeds as possible.
Run-off and erosion from rainfall are negligible when the climax species predominate. Both run-off and erosion are pronounced where other plants have succeeded the climax species. The many-branched fibrous root system is an important factor in retarding soil removal and aiding absorption.
CHAPTER II

DISTRIBUTION OF WATER

During the winter and spring months there is plenty of water on all of the range land on the McDonald Forest. The continuous rainfall during these months makes all the small intermittent streams on the hills flow. No springs of any volume were discovered high up on the range; if some could be located and developed they could be developed to make watering places during the drier months, as the only water available during the summer months is in the lower ends of Oak Creek and Jackson Creek; it is hard to get the sheep up in the higher slopes in the summer due to the lack of water in the hills. With considerable rainfall, heavy dew, and succulent feed, sheep can live without water. During the hot, dry weather, it is very essential that they have plenty of water or they will not do well, and the lambs will show the results.

It may be possible, with continued aid of Civilian Conservation Corps, to develop some of the springs that are back from the main water courses, so that the distribution of water will be better.

One of the best springs exists near the buildings located in the S. W. 4 Section 18, and it should, if possible, be developed to keep sheep from trailing up and down the slopes, which already show signs of soil erosion and excessive run-off in the sheep trails.

There are several springs close to the lower end of
Oak Creek, but it is doubtful if it would pay to develop them when there is always plenty of water in the creek at this point.

With some intensive investigation, other springs may be located and developed farther back in the hills; this would aid in the utilization and management of the range.
CHAPTER III

RODENTS

One of the big problems on the McDonald Forest range is the Pocket Gopher. In places they have done very much damage to the forage and have made the area look almost as if it had been plowed. There is no doubt that these rodents eat a great deal of forage that would otherwise be available to stock and a considerable area of ground which could otherwise be put into grass is covered with their workings. A conference was held with the wild-life division of Oregon State College and also some bulletins put out by the United States Biological Survey were studied in an effort to discover the best way to combat these pests. The following discussion is the result of those studies:

The animal doing the destruction to the forage on the forest seems to be the Willamette Valley Pocket Gopher (Thomomys Bulbiverous). It is the largest and most destructive species of this animal found in Oregon. They are very abundant in some places and have large appetites for field and forage crops. They spend much of their time underground, and burrow long tunnels, crossing and recrossing the open grass slopes on the forest. The individual Pocket Gopher leads a solitary life except during the breeding season when he seeks a mate. Four to six young are usually born to a litter, and one litter a year is the usual case. The loose mounds of earth thrown up mark the course of the
tunnels. The entrances are kept plugged except when the occupant is actually working; this habit has been developed as a means of protection against such natural enemies as snakes and weasels that can travel in such underground passages. If an opening is made in the burrow the gopher soon returns to that point and plugs it again; advantage is taken of this habit in trapping.

The Pocket Gopher found in the Willamette Valley is very easily killed by the use of the following bait: 10 lbs. green clover tips, 1 oz. strychnine (alkalois). Gather the clover tips fresh from the field at a time when dew or moisture of any kind is gone. Wet tips will not mix satisfactorily. Avoid getting grass or any foreign material mixed with them as they are not good bait and will take up strychnine that should go on the clover tips, thus reducing the efficiency of the bait. Mix by spreading the tips on a heavy paper or in a tight bos, so as to keep strychnine from sifting through; then sprinkle the strychnine on from a pepper shaker and stir until thoroughly mixed. Do not mix more than can be put on in one day.

In placing the bait, small handfuls of fresh tips may be inserted in fresh runway by opening with a trowel or tile spade from the mounds until the main runway can be reached. The tops are then deposited in the main runway and a clod of loose earth placed over it so that no earth will fall on the bait, and so that light will be excluded. (8)

The above procedure could be carried out by the herder as he must be with his sheep to a certain extent, and there
would be little expense involved. There is no doubt that this would be a very worthwhile project and some emphasis should be placed on the program as soon as possible both for the good of the range and for the increase in forage available to livestock.
CHAPTER IV

THE GRAFTING PERIOD

The period of optimum grazing on the McDonald Forest range land is between the months of February and July. After July first the range grasses and weeds dry up badly, so it is very essential that the lambs are fat and ready for market before this crucial period. It is possible to graze the old ewes all summer on the dry grass and weeds, but that procedure will leave very little forage for fall grazing unless a certain part of the range is set aside for that purpose. This very dry period of about two months is common to the whole Willamette Valley and works a hardship on the ranges and livestock. That is one of the main reasons why some irrigation should be carried out on the Jackson Place (Sec. 15 & 16). If that bottom land were irrigated and planted to perennial legumes and grasses, it would be possible to hold the lambs until they reach their prime. This would insure some green pasture during hot dry summer months. The expense of upkeep on this would not be too great, as it is necessary for the herder to go out each day to look after his sheep. There would be some expense of installation and some fencing to do, but I firmly believe it would pay in the long run. It might be possible to get Civilian Conservation Corps labor to build the ditch and to do the plowing and seeding.

It is necessary to get on the range early in February or the last part of January so that the weeds will be kept
down. The small succulent weeds are the very first forage to come. These should be cropped when they will give the most food value, because they take the moisture away from the permanent sod grasses. Also the St. Johns Wort (Hypericu m perforatum) must be grazed early as it grows nearly all winter, and the sheep will eat it only during the young succulent stage. Even though some range men say that St. Johns Wort has no forage value, a large part of the sheep's diet is made up of that weed during the winter months on the McDonald Forest.

It is very essential that no part of the range be grazed for too long or too short a period. It is possible to make the grazing period too short to properly utilize all of the forage plants. Different grasses and forage plants reach their maturity at different times, and an attempt to graze off a range or part of the range in a week, or even a month, for example, would be a mistake, resulting in the loss of considerable quantities of forage that matured either before or after this particular week or month. It is also very bad to leave the stock on a small part of the range for very long periods at a time as this tends toward over-grazing and deterioration of soil and forage. (10)
CHAPTER V

OVERGRAZING

Overgrazing may be defined as grazing when continued one or more years, that reduces the forage crop or results in a change of forage to undesirable varieties. Such condition may exist over the entire area involved, or it may be just at strategic points such as water holes, fence lines, salt licks, etc.

The good range man or livestock man should be able to see the marks of overgrazing on his range before it has reached a stage where restoration would be slow and expensive.

Some of the obvious indications of overgrazing are:

(1) Predominance of annual weeds and grasses with very little sod forming or climax species of grass left.

(2) Predominance of plants which have little or no value for any class of stock. These plants might be St. Johns Wort, Brakene Fern, Gum weed, Tarweed, Sweet Briar, etc.

(3) The presence of dead and partly dead stumps of such shrubs as Snowberry, Currant, Willow, Thimble berry, etc. This condition usually indicates that the most palatable grasses and weeds have been over-grazed.

(4) Noticeable damage to tree reproduction. Some damage is done by sheep rubbing on small trees, and by nipping leaders off young trees.

(5) Erosion and barrenness, accompanied by a network of stock trails where formerly there was a cover of vegetation. (10)

It is evident that the McDonald Forest has been grazed very heavily in the past and probably overgrazed. No fences
were up and unlimited number of livestock ranged on the area the year round. Since the School of Forestry has acquired the land considerable fence has been built, and even though a great deal of trespassing still exists, the range is coming back, and there are enough of the native sod forming grasses to reseed the area under good range management.

A few precautions that should be taken by the herder or the man in charge of the sheep are:

(1) Stay off the steep thin slopes when soil is very wet and soggy.

(2) No part of the range should be grazed so heavily that there is mechanical injury to grass through trampling or close cropping.

(3) In normal years the lambs should be finished and ready for market before the range dries up in the summer months.

(4) The grass must have a chance to form seed every three or four years, and the following spring the seedlings should be protected and given a chance to grow and get started before being grazed. This is explained in more detail under the section on deferred and rotated grazing which should be applied to the forest.

If these simple precautions are taken over all parts of the range, the stockman or owner may be reasonably sure that the range will retain its productive capacity and even improve in many cases. It will be very interesting to watch the progress of this range over a period of years under good range management. Many of the weeds should be replaced by better grasses; a thicker sod should cover the hills; and the perennial weeds will begin to die out and be replaced by better grasses.
CHAPTER VI

IMPROVING STAND OF GRASS

There are four plans commonly suggested for increasing the carrying capacity of our ranges: (1) Reseeding the domesticated grasses, (2) Reseeding with seed gathered from range grasses, (3) Entire protection of native grasses from grazing, (4) Deferred and rotation grazing.

(1) The low carrying capacity of most of the Willamette Valley hill ranges has led many of our ranchers to introduce the high yielding farm grasses on their ranges. These attempts have not always been met with favorable results. Very favorable results were obtained by a seeding of hill land to domestic grasses on the Failing Estate, just south of Corvallis. That range was seeded to Chewing Fescue, Highland Bent grass, and Kentucky Blue grass. This resulted in a wonderful stand of forage which has increased the number of stock that the range will support and has added much to the income of the rancher. (See Fig. II). We have some areas on the McDonald Forest where the native sod has practically disappeared and this method would be necessary to rejuvenate the area. They are located on the Jackson Creek side and are close to the creek where concentration of stock and possibly plowing in the past has left only a cover of weeds and annual grasses. These areas could be plowed and seeded profitably as has already been suggested in this report. (Figure 2)

(2) The second method of gathering range seed and reseeding is hardly profitable with the price of seed today. It would be cheaper to purchase the seed from one of the
seed dealers, where seed is tested for viability and germination. (11)

(3) It is hardly possible to carry out the third suggestion, as entire protection of range means taking off all the livestock. For one thing the forest is not entirely fenced and even if sheep were taken off, trespassing would be that much worse. Some income should be derived, so it would be economically poor policy to take all the stock off the range. The fire hazard would be very great in the summer with stands of the grass very dry and easily set on fire. (10)

(4) This practice is very valuable and can do a great deal of good in many localities if it is wisely used. It worked very well on range land that has suffered depletion to some extent, but where there is still fairly well distributed remnant of native grass sod. The purpose is to withhold the area from use during the growing season of such native grasses, so that they may regain some of their vitality and mature a crop of seed to assure their reproduction on the area. (11)

On the McDonald Forest it is easy to practice this development due to more or less natural division of the grazing land into the Oak Creek and Jackson Creek sections. It would not be difficult to hold one side until maturity, and graze it then. Since the sheep will not readily eat dry grass it may be necessary to let those areas that were deferred go until the fall rains begin and the forage is softened and could be utilized. There is enough of the good sod-forming
grasses on all the range land to seed in naturally with this protection, and it will be much better than trying to plow up these large areas and reseed.

It is important that fences are in good shape or time must be spent by the herder seeing that stock do not get on deferred portion of land until after seed maturity.

As was explained in the deferred grazing section, the object of this method is to let the range produce its own seed and after the seed is produced, allow the stock to graze the area and trample the seed into the ground. This has been found to have no bad effects on the grass and will insure a good crop of young seedlings the following spring. At the same time the grass will all be used and no fire hazard caused. It is necessary that the range receive the treatment about every third year, so that is where the idea of deferred and rotation grazing comes into the picture. (2)

Let us divide the McDonald forest into three divisions: The Oak Creek side, called "A", the Ridge, called "B", and the Jackson Creek section, called "C". Let us also divide the year into three 3-month divisions, making a grazing year of nine months. The first year we will graze A the first three months, B the second three months, and C the third three months. The second year we would graze B the first three months, C the second, and A the third. The third year we will graze C the first three months, A the second, and B the third. This process will be continued for an
indefinite period of time, making, as it were, a three-year rotation. We will note that C in the first year was not grazed until the third month, in which case it had an opportunity to reseed. The second year it was not grazed until the second period, which gave the seedlings a chance to start; and the third year it was grazed first, as it should be in a condition to stand it by then. Each section would have a chance to reseed every third year, no grazing would be lost, no reduction of stock would be necessary, and range would be in much better shape. (10)
Permanent Pastures:

<table>
<thead>
<tr>
<th>Description</th>
<th>Trials</th>
<th>Sheep Days Low</th>
<th>Sheep Days High</th>
<th>Sheep Days Ave</th>
<th>Acre per Animal Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Native sod on rolling hills relative free of brush, timber, and moss.</td>
<td>4</td>
<td>311</td>
<td>407</td>
<td>349</td>
<td>5</td>
</tr>
<tr>
<td>Native sod on rolling hills having considerable brush and moss.</td>
<td>10</td>
<td>180</td>
<td>272</td>
<td>226</td>
<td>8</td>
</tr>
<tr>
<td>Sown sod, English rye-grass, orchard grass, timothy, red top, or clover.</td>
<td>1</td>
<td>---</td>
<td>---</td>
<td>786</td>
<td>2.5</td>
</tr>
<tr>
<td>Volunteer grass in previously cultivated fields.</td>
<td>7</td>
<td>187</td>
<td>272</td>
<td>228</td>
<td>8</td>
</tr>
</tbody>
</table>

Annual or Cultivated Pastures:

<table>
<thead>
<tr>
<th>Description</th>
<th>Trials</th>
<th>Sheep Days Low</th>
<th>Sheep Days High</th>
<th>Sheep Days Ave</th>
<th>Acre per Animal Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rape in rows</td>
<td>2</td>
<td>394</td>
<td>1236</td>
<td>815</td>
<td>2</td>
</tr>
<tr>
<td>Clover</td>
<td>6</td>
<td>359</td>
<td>1024</td>
<td>661</td>
<td>2.6</td>
</tr>
</tbody>
</table>

Irrigated Pastures:

<table>
<thead>
<tr>
<th>Description</th>
<th>Trials</th>
<th>Sheep Days Low</th>
<th>Sheep Days High</th>
<th>Sheep Days Ave</th>
<th>Acre per Animal Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grass Mixtures</td>
<td>4</td>
<td>1017</td>
<td>1841</td>
<td>1673</td>
<td>1</td>
</tr>
</tbody>
</table>

° or 5 sheep on a 12-month's basis.
CHAPTER VII

EFFECT OF GRAZING ON CONIFER SEEDLINGS

If the establishment of conifer seedling is wanted on range land on the McDonald Forest, grazing must be limited and very well managed, in order to prevent danger to the young trees.

Generally speaking, except where livestock are bedded or where palatable vegetation is scarce, damage to seedlings from trampling is greater than from nipping. The lighter the utilization of the vegetation the less damage done to seedlings. From studies carried on and experimental plots, it was found by Leo Isaacs of the U. S. F. S. that where grazing was moderate, damage to and loss of seedlings from that source was of distinctly minor consequence, but that where overgrazing and premature use occurred, damage to forest seedlings may become a serious problem.

It is questionable whether the range land on the McDonald Forest will produce more from an economical standpoint in trees or the grazing of sheep. The economic side of the problem is being worked on at present by a graduate student in the School of Forestry at Oregon State College. When that paper is completed it will be possible to tell the relative value of the land as grazing or as timber. Due to the thinness of soil and hot dry summers and the south slopes, it is doubtful that Douglas Fir will do well on this acreage or if it grows at all, it would grow slowly and would be of poor quality. The soil will support grass and
weeds now, but in order to grow Douglas Fir it would be necessary to build up the soil and plant a nurse tree so to protect it during the hot, dry, summer months. Possibly Ponderosa Pine would do well on the site, but there is only a limited supply in the Willamette Valley so that the sale of the logs is difficult. It is the writer's opinion that the best use for this land is grazing, and, if the grazing is well managed, that the land's value will increase and the soil and vegetation will steadily become better, thus making it possible to support more livestock and bring in more returns on the land. (4)
CHAPTER VIII

Part 1 - TYPE OF SHEEP

The type of sheep being run on the McDonald Forest at present is the Romney Marsh. These sheep originated in the marsh lands of England, which is practically at sea level; the soil is an alluvial clay, and the climate is very moist. The breed is exceedingly well adapted to wet districts, which makes them a good sheep for the west coast and Willamette Valley. The breed is also a very hardy sheep, being remarkably free from foot rot and liver flukes, probably because it has built up an active resistance to these diseases.

The Romney Marsh is of medium size among the long-wooled breeds, mature rams averaging in weight about 240 lbs., and ewes from 160 to 180 lbs. The head of the sheep is hornless, white, and usually has little wool over the face. The fleece is thick, compact, and of a long staple, but it does not have the ringlets or the extreme length and evenness which characterizes other coarse wools. Rams' fleece weighs 16 to 20 pounds, while ewes shear from 12 to 16 pounds in twelve months.

The Romney Marsh are splendid grazers, attaining excellent conditions with little or no grain. Romney mutton is superior to other coarse-wooled sheep but not as good as medium-wooled breeds. The characteristics of being good-grazers, hardy rustlers, and having large lambs appeals to stockmen of the west coast. (11)
As the sheep on the McDonald Forest require some herding to keep them on the desired part of the range, it would be advantageous to cross the Romney with either Merino or Rambouillet, which would give them some of the herding instinct. That cross would result in a very hardy sheep of a good fleece and mutton quality.

The pure, fine wool sheep would not be satisfactory in the Forest, as too much wool would be lost in brush and the sheep is adapted to a dryer climate. The large open range conditions characteristic of the east side of the Cascades would be more suitable.

Part 2 - BREEDING

The breeding season in the Willamette Valley is usually during the latter part of August. This is a disadvantage in a way on the McDonald Forest, as by August the range is very dry and some green pasture is necessary to get the rams and ewes in shape for breeding. If the breeding is put off until later in the fall when the rains come, the lambs will be late and not ready by the time the range dries up for the summer, which is usually the first of July. The gestation period for sheep is from 145 to 150 days. (11)

The above conditions make good backing for the suggested irrigated meadow on the Jackson Creek, which was mentioned before in this report. With such an area the ewes could be turned into the green pasture about August 1 and by the 15th of August would be in shape for breeding. By breeding on the 15th of August the lambs would come around the 15th of
January, which would be fine under the conditions of the open winters of the Willamette Valley. By lambing this early, you would be sure of getting lambs fattened before the range dried up. In case the range should dry up earlier than usual, before the lambs were quite ready, the irrigated pasture again would solve the problem and save a set back and a loss in selling price of the lambs. They could be turned into the pasture and kept there until they reached their prime and would sell at top prices. I am sure that the irrigation and reseeding would be well worth-while, and would pay for itself in better lambs and larger lamb crops.
Much experimental work has been done on the effect of pasturing sheep versus herding sheep. The studies referred to were taken in the Wallowa National Forest by J. T. Jardine, Deputy Forest Supervisor, and his findings were very promising in favor of the pasture method of handling sheep. This method fits very well with the condition on the McDonald Forest, as it would not be possible to put a very large band of sheep on, so that it would pay to keep a herder with them at all times, and as most of the forest is fenced at present, with the finishing of the boundary fence, pasturing would be very practical.

There are several advantages to the pasture method of handling the sheep. It is well known that in order to secure a fleece of good, staple and uniform quality, the sheep must be kept in good condition throughout the year. If there is a period of a few months during which the animal is in poor flesh, there will be a flaw in the wool. The pasture system is ideal for producing a fleece long in fiber, uniform in quality, and clean, provided the forage crop is satisfactory. The sheep are free and quiet all of the time, and they will grow larger and can be kept in better condition of flesh than when herded and dogged under the herding system of grazing. Herding would be especially bad in the Willamette Valley, due to the abundance of brush and entanglements. The
sheep would tend to bunch up and get frightened and consequently many would be injured trying to get through the underbrush and down logs; also much wool would be lost by the sheep running through brush, making the fleece very uniform and of poor quality. (4)

The cost of handling sheep would be greatly reduced under pasture systems, and it would not take up all of a man's time to take care of the sheep.

Sheep handled under the pasture system will graze openly and quietly, coming together in large bunches very seldom. There is a slight tendency to assemble for the night, but this materially decreases as the lambs become less dependent on the mother ewes. The tendency to graze about all day and bed when night overtakes them is very prominent and does away with those bed grounds which are an eye sore to everyone in the eastern part of the state, where sheep are bedded from two weeks to a month in the same bed ground and where forage is destroyed for a radius of several hundred yards.

From studies made, it was found that the death loss during one hundred days was 0.2% as against 1 to 3% from bands herded on open range. Lambs handled under the pasture system were 9 pounds heavier than any of the best lambs on the open herding method. Further, as a result of the protection and freedom, the carrying capacity of the range is from 25 to 50% greater than when grazed under open herding system. (4)

It is true that the boundary fences must be finished before this method of grazing can be practiced in its fullest
extent. It will be necessary to construct a few drift fences also, so that the range can be divided into at least three different pastures, namely: on Oak Creek, High Ridge, and Jackson Creek. These fall more or less in with the topography of the range and could be easily segregated. It would be necessary to graze the High Ridge pasture at a time when there was water there; say, the fall or early spring. These pastures would also be very beneficial for practice of deferred and rotated grazing.
CHAPTER X

SALTING

Because there is generally not enough of that all-important mineral chlorine contained in the forage or in the soil, sheep must be fed sodium chloride. When feed is dry, less salt is required than when feed is succulent. Plenty of salt makes the sheep easier to handle—they are more content and healthier. There is no danger of bad results from feeding all the salt that the band will clean up if it is accustomed to it.

The mature sheep require about 1\(\frac{1}{2}\) pounds of salt every 100 days when forage is succulent, which amounts to about 1/3 pound per sheep per month for mature sheep.

The salt should be fed in a form that will not injure the mouths or teeth of sheep; also, it should be the kind from which they can obtain the desired amount in a short time.

Block salt is not entirely satisfactory since it requires too long for sheep to get a sufficient amount. The time spent licking the salt block would be better spent resting or grazing. With block salt only a few can get at a block at one time, and thus some sheep do not get enough salt.

Because of the ease of carrying and desired qualities, ordinary rock salt (1/4 ground) is the most satisfactory.

Sheep should be fed salt at least every seven days. When salt is not given for long periods or when fed at irregular intervals, the digestion of sheep is upset and scouring sometimes results.
The best way to feed salt is in wooden or canvas troughs, so that there will be no waste and salt will be kept out of the dirt.

It is important that salting be kept at least 200 feet away from water on the McDonald Forest range. It would be wise to use the salt as a means of getting the sheep away from water. The sheep would tend to graze the range more evenly if the salt was placed so that they would be compelled to go higher on the slopes to get it. The salting could be used very effectively in keeping the sheep in one end of the range and would save much time in herding. (11)
PART THREE

SUMMARY

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B. Conclusions.........page 45
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SUMMARY

A. Findings

(1) The range land on the McDonald Forest is made up chiefly of a perennial weed type.

(2) The chief pest on the Forest is the Willamette Valley Pocket Gopher which destroys much of the forage and vegetation each year.

(3) Water is very scarce in the summer and some effort should be made to develop some of the springs on the higher range for summer use.

(4) The soil is an Olympic loam, and is very shallow and rocky on many of the slopes, indicating the need for care in grazing and handling of live stock.

(5) The grazing period of optimum-use is from February until July 1. It is possible to graze on a twelve-month basis, but the stock do not do well on the very dry grass during the months of July, August, and September.

(6) Considerable trespassing takes place on the Forest, and, in the past, has been the cause for the overgrazed condition of the range after the School of Forestry obtained the land.

(7) The boundary fence is practically complete at present, which will help facilitate the management of the sheep.

(8) The timber type has little or no value for forage due to the intense shade given by the trees.
The chief browse is Poison Oak and thimbleberry and, as it is so very dense, much of the palatable browse is not available to live stock.

A forage acre requirement figure was arrived at and figured to be .2 or .2 forage acre per animal unit.

The total carrying capacity of the surveyed range equaled 647 animal months or 54 animal units, which equals to 270 head of mature sheep.

It would not be practical to try to run cattle on this range as the forage and character of the type are not adaptable to cattle.

The unit at present is not large enough to be considered an economical grass unit, but could be developed up to one in time.

The sheep best adapted to this type of range and climate is the Romney Marsh.

B. Conclusions

That the south slopes of the McDonald Forest are available and adapted to the grazing of sheep.

It requires, on the average, from two to three acres to maintain one sheep for a year.

It would be possible by deferred and rotation of grazing and good live stock management to increase the carrying capacity of the range and replace many of the present weed types with good perennial grasses.

It would pay well to invest a little time and money
in getting rid of the rodent infestation on the Forest, which consume about as much forage as the sheep.

(5) It is very difficult if not impossible to raise a crop of trees and livestock on the same area. They do not go together and it comes down to a case of best land use and the adherence to the decision arrived at after thorough consideration of both sides of the question.

C. Recommendations

(1) The installation of an irrigation system on the Jackson Place. (Section 16 as shown on the map).

(2) The plowing and seeding of all land that could be irrigated on the Jackson Place, to perennial legumes and grasses.

(3) The installation of drift fences which would divide the Forest into three separate pastures, namely; Oak Creek, Ridge Summit, and the Jackson Creek Drainage.

(4) The practice of deferred and rotated grazing on the range as advocated under the chapter on Range Management of this report.

(5) The pasturage method of grazing be carried out as soon as fences are completed to prevent the straying of live stock.

(6) To, if possible, get a man interested to take up residence on the Jackson Place. This would help in developing the irrigation system and planting of the deteriorated meadow.
(7) To take advantage of the Civilian Conservation Corps stationed on the Forest as they are a great help in building fence, brush eradication, water developments, and other range improvements.

(8) Be sure and salt away from water to help in obtaining a more even distribution of the sheep on the range and prevent congregation around the water.
PART FOUR

APPENDIX

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GLOSSARY OF TERMS

ANIMAL MONTH - One month's feed for one animal unit.

ANIMAL UNIT - One cow, one horse, five sheep, five goats, or the equivalent thereof, or forage required for 12 months for one cow, one horse, five sheep, or five goats.

DENSITY: That portion of ground surface covered by a vertical projection of the plants expressed in tenths of complete cover.

FORAGE: Any vegetation which has a value as feed for livestock.

FORAGE ACRE: An acre of land covered by a stand of forage of full cover density of highest palatable vegetation.

FORAGE ACRE REQUIREMENT: Number of forage acres necessary to provide feed for one head of livestock for one month. Forage Acre Requirements are based on animals over 6 months of age.

GRAZING CAPACITY: The number of animal units which any range will support on a sustained yield basis.

PALATABILITY: Average degree to which a plant is taken by livestock under natural conditions and best range management.

SURFACE ACRE: Acre of land as surveyed on ground by horizontal measurement.

VEGETATION: Any plant life on the range available to livestock.

VOLUME: Amount of forage produced on a given area in one year.

UTILIZATION: Average percentage of annual forage crop which may be consumed by livestock without damage to the range. A certain amount should be left on the ground; 20-25% is estimated as about right amount.
BIBLIOGRAPHY

(1) Lyon, Homer, "Grazing Experiments on Cutover Douglas Fir Land in the State of Oregon."


(7) Nelson, Oran M., "Cost of Producing Sheep on Western Oregon Farms," Agricultural Experiment Station Circular No. 94 (December, 1929).


(9) Powers, W. L. and Torgerson, E. F., "Major Soil Types in Oregon," Oregon Agricultural Experiment Station (Soils Department).


<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Abbrev.</th>
<th>Per cent Palatability S &amp; G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agropyron spp.</td>
<td>Wheatgrasses</td>
<td>AGR</td>
<td>40</td>
</tr>
<tr>
<td>Agropyron Repens</td>
<td>Quack grass</td>
<td>Are</td>
<td>30</td>
</tr>
<tr>
<td>Avena fatua</td>
<td>Wild oats</td>
<td>Afa</td>
<td>40</td>
</tr>
<tr>
<td>Bromus</td>
<td>Brome</td>
<td>BRO</td>
<td>40</td>
</tr>
<tr>
<td>Bromus marginatus</td>
<td>Big mountain brome</td>
<td>Bma</td>
<td>40</td>
</tr>
<tr>
<td>Carex spp. (Meadow)</td>
<td>Meadow sedges</td>
<td>CAR-M</td>
<td>15</td>
</tr>
<tr>
<td>Cynosorus</td>
<td>Pointed head</td>
<td>CYN</td>
<td>20</td>
</tr>
<tr>
<td>Dactylis glomerata</td>
<td>Orchard grass</td>
<td>Dgl</td>
<td>40</td>
</tr>
<tr>
<td>Elymus glaucus</td>
<td>Blue wild-rye</td>
<td>Egl</td>
<td>20</td>
</tr>
<tr>
<td>Festuca elatior</td>
<td>Meadow fescue</td>
<td>Fel</td>
<td>60</td>
</tr>
<tr>
<td>Festuca idahoensis</td>
<td>Bluebunch fescue</td>
<td>Fid</td>
<td>40</td>
</tr>
<tr>
<td>Festuca spp. (annual)</td>
<td>Annual fescues</td>
<td>FES-A</td>
<td>20</td>
</tr>
<tr>
<td>Holcus mollis</td>
<td>Velvet grass</td>
<td>Hmo</td>
<td>30</td>
</tr>
<tr>
<td>Hordeum jubatum</td>
<td>Foxtail barley</td>
<td>Hju</td>
<td>10</td>
</tr>
<tr>
<td>Juncoides spp.</td>
<td>Woodrush</td>
<td>JUN</td>
<td>20</td>
</tr>
<tr>
<td>Phleum pratense</td>
<td>Timothy</td>
<td>Ppe</td>
<td>40</td>
</tr>
<tr>
<td>Poa compressa</td>
<td>Canada bluegrass</td>
<td>Pco</td>
<td>60</td>
</tr>
<tr>
<td>Poa spp.</td>
<td>Perennial bluegrasses</td>
<td>POA</td>
<td>60</td>
</tr>
</tbody>
</table>
# Weeds Found on the McDonald Forest

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Abbrev.</th>
<th>Palatability</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Achillea millefolium</em></td>
<td>Yarrow</td>
<td>Ami</td>
<td>30</td>
</tr>
<tr>
<td><em>Chamaenerion angustifolium</em></td>
<td>Fireweed</td>
<td>Cal</td>
<td>50</td>
</tr>
<tr>
<td><em>Cirsium arvense</em></td>
<td>Canada thistle</td>
<td>Cvc</td>
<td>0</td>
</tr>
<tr>
<td><em>Cirsium spp.</em></td>
<td>Thistle</td>
<td>CIS</td>
<td>10</td>
</tr>
<tr>
<td><em>Daucus carota</em></td>
<td>Wild carrot</td>
<td>Dct</td>
<td>0</td>
</tr>
<tr>
<td><em>Equisetum spp.</em></td>
<td>Horsetail</td>
<td>EQU</td>
<td>0</td>
</tr>
<tr>
<td><em>Fragaria spp.</em></td>
<td>Strawberry</td>
<td>FRG</td>
<td>0</td>
</tr>
<tr>
<td><em>Hypericum perforatum</em></td>
<td>St. Johns wort</td>
<td>Hpe</td>
<td>0</td>
</tr>
<tr>
<td><em>Hypochaeris radicata</em></td>
<td>False dandelion</td>
<td>Hrd</td>
<td>0</td>
</tr>
<tr>
<td><em>Iris tenax</em></td>
<td>Iris</td>
<td>Ite</td>
<td>0</td>
</tr>
<tr>
<td><em>Leontodon taraxacum</em></td>
<td>Dandelion</td>
<td>Lta</td>
<td>70</td>
</tr>
<tr>
<td><em>Madia spp.</em></td>
<td>Tarweed</td>
<td>MAD</td>
<td>0</td>
</tr>
<tr>
<td><em>Plantago spp.</em></td>
<td>Plantain</td>
<td>PLO</td>
<td>0</td>
</tr>
<tr>
<td><em>Polystichum munitum</em></td>
<td>Swordfern</td>
<td>Pmu</td>
<td>0</td>
</tr>
<tr>
<td><em>Potentilla spp.</em></td>
<td>Fivefingers</td>
<td>PCN</td>
<td>20</td>
</tr>
<tr>
<td><em>Prunella vulgaris</em></td>
<td>Heal all</td>
<td>Pvm</td>
<td>0</td>
</tr>
<tr>
<td><em>Pteridium aquilinum pubescens</em></td>
<td>Brackenfern</td>
<td>Paq</td>
<td>0</td>
</tr>
<tr>
<td><em>Rumex spp.</em></td>
<td>Dock</td>
<td>RUM</td>
<td>10</td>
</tr>
<tr>
<td><em>Ranunculus spp.</em></td>
<td>Buttercup</td>
<td>Ran</td>
<td>30</td>
</tr>
<tr>
<td><em>Thalictrum spp.</em></td>
<td>Meadow rue</td>
<td>THI</td>
<td>10</td>
</tr>
<tr>
<td><em>Trifolium spp.</em></td>
<td>Clover</td>
<td>TRF</td>
<td>70</td>
</tr>
<tr>
<td><em>Vicia americana</em></td>
<td>Vetch</td>
<td>Vaa</td>
<td>70</td>
</tr>
<tr>
<td>Scientific Name</td>
<td>Common Name</td>
<td>Abbrev.</td>
<td>Per Cent Palatability S &amp; G</td>
</tr>
<tr>
<td>------------------------------</td>
<td>------------------------</td>
<td>---------</td>
<td>----------------------------</td>
</tr>
<tr>
<td>Acer circinatum</td>
<td>Vine Maple</td>
<td>Ac1</td>
<td>15</td>
</tr>
<tr>
<td>Alnus rubra</td>
<td>Alder</td>
<td>ALN</td>
<td>0</td>
</tr>
<tr>
<td>Ceanothus integerrimus</td>
<td>Blue brush</td>
<td>Cis</td>
<td>60</td>
</tr>
<tr>
<td>Cornus nuttallii</td>
<td>Dogwood</td>
<td>COR</td>
<td>10</td>
</tr>
<tr>
<td>Corylus californica</td>
<td>California hazel</td>
<td>Coi</td>
<td>10</td>
</tr>
<tr>
<td>Opulaster opulifolius</td>
<td>Ninebark</td>
<td>Oop</td>
<td>10</td>
</tr>
<tr>
<td>Quercus garryana</td>
<td>Scrub oak</td>
<td>QUE</td>
<td>0</td>
</tr>
<tr>
<td>Rhus diversiloba</td>
<td>Poison oak</td>
<td>Rdi</td>
<td>0</td>
</tr>
<tr>
<td>Ribes sanguineum</td>
<td>Red flowering currantRsa</td>
<td>Rsa</td>
<td>20</td>
</tr>
<tr>
<td>Rosa nutkana</td>
<td>Nootka rose</td>
<td>Rnu</td>
<td>40</td>
</tr>
<tr>
<td>Rosa pisocarpa</td>
<td>Cluster rose</td>
<td>Rpi</td>
<td>40</td>
</tr>
<tr>
<td>Rosa rubiginosa</td>
<td>Sweet briar rose</td>
<td>Rru</td>
<td>0</td>
</tr>
<tr>
<td>Rubus macropetalus</td>
<td>Blackberry</td>
<td>Rma</td>
<td>10</td>
</tr>
<tr>
<td>Rubus parviflorus</td>
<td>Thimbleberry</td>
<td>Rpa</td>
<td>40</td>
</tr>
<tr>
<td>Salix spp.</td>
<td>Willow</td>
<td>SAL</td>
<td>40</td>
</tr>
<tr>
<td>Sericotheca discolor</td>
<td>Ocean spray</td>
<td>Sdi</td>
<td>10</td>
</tr>
<tr>
<td>Symphoricarpus albus</td>
<td>Snowberry</td>
<td>Sau</td>
<td>30</td>
</tr>
</tbody>
</table>
**RANGE SURVEY FIELD SHEET**  
(Reconnaissance Method)

- **Form WD-8**
- **U.S. DEPARTMENT OF AGRICULTURE**
- **Agricultural Adjustment Administration**
- **Western Division**

**State**: Oregon  
**County**: Benton

---

**Examining Unit**: Jackson Place  
** Examiner**:  
**Location**: Sec. 15, T. 16

**Date**: Nov. 9, 1940

**Field Sheet No.**:  

---

**Forage Capacity**: F. A. factor × 11.5

**Surface acres** = 15.2

**Forage acres** = Forage acre allowance

**Animal months** + 12 = Animal units

---

**TYPE WRITEUP**  
**PRINCIPAL VEGETATION SPECIES**

<table>
<thead>
<tr>
<th>Grasses, %</th>
<th>Each Spec.</th>
<th>% Palatable</th>
<th>Weeds, %</th>
<th>Each Spec.</th>
<th>% Palatable</th>
<th>Browser, %</th>
<th>Each Spec.</th>
<th>% Palatable</th>
</tr>
</thead>
<tbody>
<tr>
<td>JUN</td>
<td>2</td>
<td>20.000</td>
<td>H.p.e.</td>
<td>10</td>
<td>0.000</td>
<td>R.r.u.</td>
<td>3</td>
<td>0.000</td>
</tr>
<tr>
<td>CAR-Mt</td>
<td></td>
<td></td>
<td>C15</td>
<td>1</td>
<td>0</td>
<td>R.d.i.</td>
<td>1</td>
<td>0.000</td>
</tr>
<tr>
<td>Hmo</td>
<td>3</td>
<td>30.000</td>
<td>Gma</td>
<td>1</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Egl</td>
<td>18.20</td>
<td>0.030</td>
<td>FRG</td>
<td>2</td>
<td>0.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CYN</td>
<td>42.00</td>
<td>0.000</td>
<td>Plo</td>
<td>3</td>
<td>0.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hiu</td>
<td>210</td>
<td>0.000</td>
<td>Ann</td>
<td>5</td>
<td>40.020</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BRO</td>
<td>17.40</td>
<td>0.000</td>
<td>Cal</td>
<td>2</td>
<td>50.010</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGR</td>
<td>54.00</td>
<td>0.020</td>
<td>TRF</td>
<td>4</td>
<td>70.028</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F.S-At</td>
<td></td>
<td></td>
<td>Ami</td>
<td>3</td>
<td>30.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POA</td>
<td>56.030</td>
<td>0.000</td>
<td>Ran</td>
<td>5</td>
<td>30.015</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PON</td>
<td>10.010</td>
<td>0.000</td>
<td>Paq</td>
<td>1</td>
<td>0.000</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

(Over)
**COMMENTS**

Current forage utilization: (check one) Over □ Proper □ Under □

Plant vigor: (check one) Poor □ Fair □ Good □

Range condition: (check one) Poor □ Fair □ Good □

Relative productiveness of site: (check one) Low □ Average □ High □

<table>
<thead>
<tr>
<th>Watering places</th>
<th>(Kind: Lake, spring, tank, etc.)</th>
<th>(Distance)</th>
<th>(Permanent, temporary)</th>
</tr>
</thead>
</table>

Kind of stock on range: (check one or more) Cattle □ Horses □ Sheep □ Goats □

Proper grazing period: (check one or more) Spring □ Summer □ Fall-winter □ Year long □

Wildlife: Rodents: Bad

Game, predators, rodents (species and abundance)

Soil erosion: Sheet erosion evident

Gully erosion:
- Occasional gullies: (check one) Shallow □ Medium □ Deep □ Heavy □
- Frequent gullies: (check one) Shallow □ Deep □

Wind erosion: Deposition evident 

Removal evident

(Explanation of gully terms: Occasional gullies are gullies more than 100 feet apart. Frequent gullies are gullies less than 100 feet apart. Shallow gullies are those easily crossable by stock. Deep gullies are those deep enough to interfere with stock movements.)

**RECOMMENDATIONS ON PRACTICES**

(Indicate location and extent)

(a) Natural reseeding by deferred grazing

(b) Artificial reseeding

(d) Contour listing, furrowing, or subsoiling

(f) Spreader dams and terraces

What additional water developments are needed to insure proper utilization? Location and type recommended

Elimination of destructive plants

(l) Fire guards

Other practices and improvements: Lots of St. John's Wort.

Sweet Briar needs pulling.

**REMARKS:** Turkeys have stripped part of the area.

Reproduction shows sign of overgrazing.

Beach dams needed to check erosion in gullies.

(Date) (Range examiner)
**RANGE SURVEY FIELD SHEET**  
(Reconnaissance Method)

Ranching unit: Jackson Place  
Examiner: Ed. Beiger  
Type: 10-Cci-Ryu  
Avg. density: 25  
Avg. % Pal.: 29A  
F. A. factor: 147  
(G. and H. or S. and G.)

Grazing Capacity: F. A. factor \(147\) \(\times\) 48  
Surface acres = 20.5

Forage acres ÷ Forage acre allowance = 2  
Animal months ÷ 12 = 8  
Animal units.

**TYPE WRITEUP**

**PRINCIPAL VEGETATION SPECIES**

<table>
<thead>
<tr>
<th>Grasses, 40%</th>
<th>% Each Spec.</th>
<th>% Palatable</th>
<th>Weight Palatable</th>
<th>Weeds, 25%</th>
<th>% Each Spec.</th>
<th>% Palatable</th>
<th>Weight Palatable</th>
<th>Browse, 35%</th>
<th>% Each Spec.</th>
<th>% Palatable</th>
<th>Weight Palatable</th>
</tr>
</thead>
<tbody>
<tr>
<td>D. g. l.</td>
<td>10 40 0.040</td>
<td>H. p.</td>
<td>7 0 0.000</td>
<td>R. m.</td>
<td>6 10 0.006</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E. g. e.</td>
<td>10 20 0.020</td>
<td>P. q.</td>
<td>2 0 0.000</td>
<td>R. r.</td>
<td>5 0 0.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H. m.</td>
<td>5 30 0.015</td>
<td>C. v.</td>
<td>1 - -</td>
<td>R. d.</td>
<td>2 0 0.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P. o. A.</td>
<td>15 60 0.090</td>
<td>A. m.</td>
<td>1 - -</td>
<td>C. c.</td>
<td>10 10 0.010</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>J. U. N.</td>
<td>1 - -</td>
<td>A. n.</td>
<td>5 40 0.020</td>
<td>A. c.</td>
<td>2 15 0.003</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ca-R-M.</td>
<td>1 - -</td>
<td>G. m.</td>
<td>1 - -</td>
<td>S. d.</td>
<td>5 30 0.015</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P. m. u.</td>
<td>1 - -</td>
<td>P. m.</td>
<td>1 - -</td>
<td>C. O. R.</td>
<td>5 10 0.005</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L. t. a.</td>
<td>5 70 0.035</td>
<td>O. r. e. G.</td>
<td>1 - -</td>
<td>0.39</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>T. R. F.</td>
<td>5 70 0.035</td>
<td>G. m.</td>
<td>1 - -</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(over)
**COMMENTS**

Current forage utilization: (check one) Over □ Proper □ Under □

Plant vigor: (check one) Poor □ Fair □ Good □

Range condition: (check one) Poor □ Fair □ Good □

Relative productiveness of site: (check one) Low □ Average □ High □

Watering places

| Kind of stock on range: (check one or more) Cattle □ Horses □ Sheep □ Goats □ |
| (check one) | (Distance) | (Permanent, temporary) |

Kind of stock on range: (check one or more) Cattle □ Horses □ Sheep □ Goats □

Proper grazing period: (check one or more) Spring □ Summer □ Fall-winter □ Year long □

Wildlife

| Wildlife | (Game, predators, rodents (species and abundance)) |

Soil erosion: Sheet erosion evident

Gully erosion:
- Occasional gullies: (check one) Shallow □ Medium □ Deep □ Heavy □
- Frequent gullies: (check one) Shallow □ Deep □

Wind erosion: Deposition evident Removal evident

(Explanation of gully terms: Occasional gullies are gullies more than 100 feet apart. Frequent gullies are gullies less than 100 feet apart. Shallow gullies are those easily crossable by stock. Deep gullies are those deep enough to interfere with stock movements.)

**RECOMMENDATIONS ON PRACTICES**

(Indicate location and extent)

(a) Natural reseeding by deferred grazing

(b) Artificial reseeding

(d) Contour listing, furrowing, or subsoiling

(f) Spreader dams and terraces

What additional water developments are needed to insure proper utilization? Location and type recommended

Elimination of destructive plants

(f) Fire guards

Other practices and improvements

(Fences, adjusted stocking, rodent control, poisonous-plant control)

**REMARKS:**

(Date)

(Range examiner)
RANCHING UNIT: Jackson Place

DATE: NOV. 9, 1940

LOCATION: SE. 15 T. 16

Grazing Capacity: F. A. factor $690 \times 80 = 55200$ Surface acres = 55.2

Forage acres $\div$ Forage acre allowance = $2.76$

Animal months $\div 12 = 2$ Animal units.

**TYPE WRITEUP**

**PRINCIPAL VEGETATION SPECIES**

<table>
<thead>
<tr>
<th>GRASSES</th>
<th>% EACH SPEC.</th>
<th>% PALATABLE</th>
<th>WEIGHT PALATABLE</th>
<th>WEEKS, 20%</th>
<th>% EACH SPEC.</th>
<th>% PALATABLE</th>
<th>WEIGHT PALATABLE</th>
<th>BROWSE, 60%</th>
<th>% EACH SPEC.</th>
<th>% PALATABLE</th>
<th>WEIGHT PALATABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dal</td>
<td>5</td>
<td>40</td>
<td>0.021</td>
<td>P. A.</td>
<td>5</td>
<td>0</td>
<td>0.000</td>
<td>QUE</td>
<td>10</td>
<td>0</td>
<td>0.000</td>
</tr>
<tr>
<td>HMo</td>
<td>5</td>
<td>30</td>
<td>0.015</td>
<td>H. P.</td>
<td>3</td>
<td>0</td>
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(Over)
COMMENTS

Current forage utilization: (check one) Over □ Proper □ Under □
Plant vigor: (check one) Poor □ Fair □ Good □
Range condition: (check one) Poor □ Fair □ Good □
Relative productiveness of site: (check one) Low □ Average □ High □

Watering places

<table>
<thead>
<tr>
<th>Kind: Lake, spring, tank, etc.</th>
<th>(Distance)</th>
<th>(Permanent, temporary)</th>
</tr>
</thead>
</table>

Kind of stock on range: (check one or more) Cattle □ Horses □ Sheep □ Goats □
Proper grazing period: (check one or more) Spring □ Summer □ Fall-winter □ Year long □

Wildlife

| Game, predators, rodents (species and abundance) |

Soil erosion: Sheet erosion evident

Gully erosion:

Occasional gullies: (check one) Shallow □ Medium □ Deep □ Heavy □
Frequent gullies: (check one) Shallow □ Deep □

Wind erosion: Deposition evident

Removal evident

(Explanation of gully terms: Occasional gullies are gullies more than 100 feet apart. Frequent gullies are gullies less than 100 feet apart. Shallow gullies are those easily crossable by stock. Deep gullies are those deep enough to interfere with stock movements.)

RECOMMENDATIONS ON PRACTICES

(Indicate location and extent)

(a) Natural reseeding by deferred grazing

(b) Artificial reseeding

(d) Contour listing, furrowing, or subsoiling

(f) Spreader dams and terraces

What additional water developments are needed to insure proper utilization? Location and type recommended

Elimination of destructive plants

(f) Fire guards

Other practices and improvements

(Fences, adjusted stocking, rodent control, poisonous-plant control)

REMARKS:

__________________________________________________________

__________________________________________________________

__________________________________________________________

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__________________________________________________________

(Date)

(Range examiner)
FORM WD-8
U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL ADJUSTMENT ADMINISTRATION
Western Division

State OREGON County BENTON

(Code and ranch serial number)

RANGE SURVEY FIELD SHEET
(Reconnaissance Method)

Ranching unit Jackson Place
Examiner Ed. Geiger
Type 3-
Avg. density 5
Avg. % Pal. 20.0
F. A. factor 100

Grazing Capacity: F. A. factor 100 × 19 Surface acres = 19
Forage acres + Forage acre allowance = 9.5
Animal months ÷ 12 = Animal units.

TYPE WRITEUP
PRINCIPAL VEGETATION SPECIES

<table>
<thead>
<tr>
<th>GRASSES</th>
<th>% EACH SPEC.</th>
<th>% PALATABLE</th>
<th>WEIGHT PALATABLE</th>
<th>GRASSES</th>
<th>% EACH SPEC.</th>
<th>% PALATABLE</th>
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<th>BROWSE</th>
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(over)
COMMENTS

Current forage utilization: (check one) Over □ Proper □ Under □
Plant vigor: (check one) Poor □ Fair □ Good □
Range condition: (check one) Poor □ Fair □ Good □
Relative productivity of site: (check one) Low □ Average □ High □

Watering places

(Kind: Lake, spring, tank, etc.) (Distance) (Permanent, temporary)

Kind of stock on range: (check one or more) Cattle □ Horses □ Sheep □ Goats □
Proper grazing period: (check one or more) Spring □ Summer □ Fall-winter □ Year long □

Wildlife

(Wildlife species and abundance)

Soil erosion: Sheet erosion evident

Gully erosion:

Occasional gullies: (check one) Shallow □ Medium □ Deep □ Heavy □
Frequent gullies: (check one) Shallow □ Deep □

Wind erosion: Deposition evident Removal evident

(Explanation of gully terms: Occasional gullies are gullies more than 100 feet apart. Frequent gullies are gullies less than 100 feet apart. Shallow gullies are those easily crossable by stock. Deep gullies are those deep enough to interfere with stock movements.)

RECOMMENDATIONS ON PRACTICES

(Indicate location and extent)

(a) Natural reseeding by deferred grazing

(b) Artificial reseeding

(c) Contour listing, furrowing, or subsoiling

(f) Spreader dams and terraces

What additional water developments are needed to insure proper utilization? Location and type recommended

Elimination of destructive plants

(t) Fire guards

Other practices and improvements

(Fences, adjusted stocking, rodent control, poisonous-plant control)

REMARKS:

(Date)

(Range examiner)
RANGE SURVEY FIELD SHEET
(Reconnaissance Method)

Ranching unit: Jackson Place
Examiner: Ed. Geiger
Type: 3 -H. P. - B. R.
Avg. density: 1485
F. A. factor: 1485

Grazing Capacity: F. A. factor \times 41

Surface acres = 41
Forage acres - Forage acre allowance = 5
Animal months \div 12 = Animal units.

TYPE WRITEUP
PRINCIPAL VEGETATION SPECIES

<table>
<thead>
<tr>
<th>Grasses</th>
<th>% Each Spec.</th>
<th>% Palatable</th>
<th>Weight Palatable</th>
<th>Weeds</th>
<th>% Each Spec.</th>
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<th>Browse</th>
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(over)
COMMENTS

Current forage utilization: (check one) Over □ Proper □ Under □
Plant vigor: (check one) Poor □ Fair □ Good □
Range condition: (check one) Poor □ Fair □ Good □
Relative productiveness of site: (check one) Low □ Average □ High □

Watering places .................................................. (Kind: Lake, spring, tank, etc.) ........................................... (Distance) ......................................................... (Permanent, temporary)

Kind of stock on range: (check one or more) Cattle □ Horses □ Sheep □ Goats □
Proper grazing period: (check one or more) Spring □ Summer □ Fall-winter □ Year long □

Wildlife ................................................................ (Game, predators, rodents (species and abundance))

Soil erosion: Sheet erosion evident .................................................
Gully erosion:
Occasional gullies: (check one) Shallow □ Medium □ Deep □ Heavy □
Frequent gullies: (check one) Shallow □ Deep □

Wind erosion: Deposition evident .................................................... Removal evident ...........................................................
(Explanation of gully terms: Occasional gullies are gullies more than 100 feet apart. Frequent gullies are gullies less than 100 feet apart. Shallow gullies are those easily crossable by stock. Deep gullies are those deep enough to interfere with stock movements.)

RECOMMENDATIONS ON PRACTICES
(Indicate location and extent)

(a) Natural reseeding by deferred grazing .................................................................

(b) Artificial reseeding ......................................................................................

(d) Contour listing, furrowing, or subsoiling .........................................................

(f) Spreader dams and terraces ..........................................................................

What additional water developments are needed to insure proper utilization? Location and type recommended
..........................................................................................................................................

Elimination of destructive plants ...........................................................................

(f) Fire guards ........................................................................................................

Other practices and improvements ............................................................................. (Pens, adjusted stocking, rodent control, poisonous-plant control)
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REMARKS:
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(Date) ..............................................................................................................................

U. S. GOVERNMENT PRINTING OFFICE 19—12890 (Range examiner)
RANGE SURVEY FIELD SHEET
(Reconnaissance Method)

Ranching unit: Jackson Place
Examiner: Ed Geiger
Type: 2. POA, MEADOW
Avg. density: 32,2
F. A. factor: For (C. and H. or S. and G.)

Grazing Capacity: F. A. factor \( \times \) 14
Surface acres = 46
Forage acres \div Forage acre allowance = 4 Animal units.

TYPE WRITEUP
PRINCIPAL VEGETATION SPECIES

<table>
<thead>
<tr>
<th>Grasses, % Each Spec.</th>
<th>% Each Palatable</th>
<th>% Weight Palatable</th>
<th>Weeds, % Each Spec.</th>
<th>% Each Palatable</th>
<th>% Weight Palatable</th>
<th>Browse, % Each Spec.</th>
<th>% Palatable</th>
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(over)
COMMENTS

Current forage utilization: (check one) Over □ Proper □ Under □
Plant vigor: (check one) Poor □ Fair □ Good □
Range condition: (check one) Poor □ Fair □ Good □
Relative productiveness of site: (check one) Low □ Average □ High □

Watering places (Kind: Lake, spring, tank, etc.) (Distance) (Permanent, temporary)

Kind of stock on range: (check one or more) Cattle □ Horses □ Sheep □ Goats □
Proper grazing period: (check one or more) Spring □ Summer □ Fall-winter □ Year long □

Wildlife (Game, predators, rodents (species and abundance))

Soil erosion: Sheet erosion evident
Gully erosion:
Occasional gullies: (check one) Shallow □ Medium □ Deep □ Heavy □
Frequent gullies: (check one) Shallow □ Deep □

Wind erosion: Deposition evident Removal evident
(Explanation of gully terms: Occasional gullies are gullies more than 100 feet apart. Frequent gullies are gullies less than 100 feet apart. Shallow gullies are those easily crossable by stock. Deep gullies are those deep enough to interfere with stock movements.)

RECOMMENDATIONS ON PRACTICES
(Indicate location and extent)

(a) Natural reseeding by deferred grazing
(b) Artificial reseeding
(d) Contour listing, furrowing, or subsoiling
(f) Spreader dams and terraces

What additional water developments are needed to insure proper utilization? Location and type recommended

Elimination of destructive plants

(f) Fire guards

Other practices and improvements (Fences, adjusted stocking, rodent control, poisonous-plant control)

Remarks:

(Date) (Range examiner)
Type

1 D. F. - BRO - 1/2

Parts of whole range

Circumstances existing in the case of there is no grazing value in the timber type, some cases their is slight bit of palatable forage but it cannot be economically used due to density of timber or sparseness of the forage growth. It is classed as waste because of the impracticability of running stock over so large an area to get such a small amount of feed.
### RANGE SURVEY FIELD SHEET
(Reconnaissance Method)

<table>
<thead>
<tr>
<th>Ranching unit</th>
<th>Date</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>Parts of Section 2-9, 15, 16-17-18-19-20</td>
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**Examiner**

<table>
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<th>Location</th>
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<tbody>
<tr>
<td>Ed. Reigen</td>
<td>BRO - Egl</td>
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**Type Field sheet No.**

<table>
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<tr>
<th>Average density</th>
<th>Average % Pal.</th>
<th>F. A. factor (G. H. or B. and G.)</th>
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</thead>
<tbody>
<tr>
<td>8</td>
<td>96%</td>
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</tbody>
</table>

**Grazing Capacity:**

- F. A. factor \( \times \) 961 = surface acres
- Forage acres \( \div \) forage acre allowance =
- Animal months \( \div \) 12 = animal units.

### TYPE WRITEUP

#### PRINCIPAL VEGETATION SPECIES

<table>
<thead>
<tr>
<th>Grasses</th>
<th>% Each Spec.</th>
<th>% Palatable</th>
<th>Weight Palatable</th>
<th>Weeds, % Each Spec.</th>
<th>% Palatable</th>
<th>Weight Palatable</th>
<th>Browse, % Each Spec.</th>
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- Pyl 1 3 0.000
- PO l 3 0.000
- L t a 2 70.014
- P O N 3 20.000
- A m i 3 30.000
- Water Cress 2 20.000

(over)
COMMENTS

Current forage utilization: (check one) Over □ Proper □ Under □
Plant vigor: (check one) Poor □ Fair □ Good □
Range condition: (check one) Poor □ Fair □ Good □
Relative productiveness of site: (check one) Low □ Average □ High □

Watering places

(Kind: Lake, spring, tank, etc.)
(Distance)
(Permanent, temporary)

Kind of stock on range: (check one or more) Cattle □ Horses □ Sheep □ Goats □
Proper grazing period: (check one or more) Spring □ Summer □ Fall-winter □ Year long □

Wildlife

(Game, predators, rodents (species and abundance))

Soil erosion: Sheet erosion evident

Gully erosion:
Occasional gullies: (check one) Shallow □ Medium □ Deep □ Heavy □
Frequent gullies: (check one) Shallow □ Deep □

Wind erosion: Deposition evident Removal evident

(Explanation of gully terms: Occasional gullies are gullies more than 100 feet apart. Frequent gullies are gullies less than 100 feet apart. Shallow gullies are those easily crossable by stock. Deep gullies are those deep enough to interfere with stock movements.)

RECOMMENDATIONS ON PRACTICES
(Indicate location and extent)

(a) Natural reseeding by deferred grazing

(b) Artificial reseeding

(d) Contour listing, furrowing, or subsoiling

(f) Spreader dams and terraces

What additional water developments are needed to insure proper utilization? Location and type recommended

Elimination of destructive plants

(i) Fire guards

Other practices and improvements
(Fences, adjusted stocking, rodent control, poisonous-plant control)

REMARKS:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

(Date) (Range examiner)
RANGE SURVEY FIELD SHEET
(Reconnaissance Method)

Ranching unit: Ridge Rd.
Examiner: Ed. Geiger
Type: I - AGR.
Avg. density: 65
Avg. % Pal.: 312
F. A. factor: 20.3
(G. and H. or S. and G.)

Grazing Capacity: F. A. factor \( \times \) 14
Surface acres = 6.8
Forage acres ÷ Forage acre allowance = 1.3
Animal months + 12 = Animal units.

TYPE WRITEUP
PRINCIPAL VEGETATION SPECIES

<table>
<thead>
<tr>
<th>Grasses, 60%</th>
<th>% Each Spec.</th>
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<th>Weight Palatable</th>
<th>Weeds, 30%</th>
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<th>Browse, 4%</th>
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(over)
COMMENTS

Current forage utilization: (check one) Over □ Proper □ Under □
Plant vigor: (check one) Poor □ Fair □ Good □
Range condition: (check one) Poor □ Fair □ Good □
Relative productiveness of site: (check one) Low □ Average □ High □

Watering places

<table>
<thead>
<tr>
<th>Kind: Lake, spring, tank, etc.</th>
<th>Distance</th>
<th>Permanent, temporary</th>
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Kind of stock on range: (check one or more) Cattle □ Horses □ Sheep □ Goats □
Proper grazing period: (check one or more) Spring □ Summer □ Fall-winter □ Year long □

Wildlife: Rodents

Wildlife: (Game, predators, rodents (species and abundance))

Soil erosion: Sheet erosion evident

Gully erosion:

Occasional gullies: (check one) Shallow □ Medium □ Deep □ Heavy □
Frequent gullies: (check one) Shallow □ Deep □

Wind erosion: Deposition evident Removal evident

(Explanation of gully terms: Occasional gullies are gullies more than 100 feet apart. Frequent gullies are gullies less than 100 feet apart. Shallow gullies are those easily crossable by stock. Deep gullies are those deep enough to interfere with stock movements.)

RECOMMENDATIONS ON PRACTICES

(Indicate location and extent)

(a) Natural reseeding by deferred grazing

(b) Artificial reseeding

(d) Contour listing, furrowing, or subsoiling

(f) Spreader dams and terraces

What additional water developments are needed to insure proper utilization? Location and type recommended

Elimination of destructive plants

(f) Fire guards

Other practices and improvements

Remarks:

Some D.F. Reproduction... Broken fern along edge of timber only. Reproduction shows signs of rubbing or some browsing to limited extent.

(Date)

U. S. Government Printing Office 16—12000

(Range examiner)
RANCHING UNIT: Ridge Rd.

Examiner: Ed Geiger

Type: I-AGR-1ES

Avg. density: 60
Avg. % Pal.: 332
F. A. factor: 1992

Grazing Capacity: F. A. factor \( \times \) 2.3
Surface acres = 4.6
Forage acres \( \div \) Forage acre allowance = 2
Animal months \( \div \) 12 = Animal units.

TYPE WRITEUP

PRINCIPAL VEGETATION SPECIES

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<th>% Each Spec.</th>
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<th>Weeds, 34%</th>
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<th>Browse, 1%</th>
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(OVER)
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Proper grazing period: (check one or more) Spring □ Summer □ Fall-winter □ Year long □

Wildlife □ Rodents □

Wildlife: (Game, predators, rodents (species and abundance))

Soil erosion: Sheet erosion evident

Gully erosion:
Occasional gullies: (check one) Shallow □ Medium □ Deep □ Heavy □
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(Indicate location and extent)

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What additional water developments are needed to insure proper utilization? Location and type recommended

Elimination of destructive plants

(i) Fire guards

Other practices and improvements

(Fences, adjusted stocking, rodent control, poisonous-plant control)

Remarks: Some D.E. reproduction: Bracken fern along edge of timber only

(Date)
RANGE SURVEY FIELD SHEET
(Reconnaissance Method)

Ranching unit: Ridge Rd.
Examiner: Ed. Greer
Date: NOV. 24, 1940

Type: I-AGR-FFS
State: OREGON
County: BENTON

Avg. density 150.6
F. A. factor 150.6

Grazing Capacity: F. A. factor \( \times \) 4.8
Surface acres = 7.2

Forage acres \( ÷ \) Forage acre allowance = 3
Animal months \( ÷ \) 12 = 3 Animal units.

TYPE WRITEUP
PRINCIPAL VEGETATION SPECIES

<table>
<thead>
<tr>
<th>Grasses, % Each Spec.</th>
<th>% Palatable</th>
<th>Weight Palatable</th>
<th>Weeds, % Each Spec.</th>
<th>% Palatable</th>
<th>Weight Palatable</th>
<th>Browse, % Each Spec.</th>
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Proper grazing period: (check one or more) Spring □ Summer □ Fall-winter □ Year long □

Wildlife Rodents bad

(Game, predators, rodents (species and abundance))

Soil erosion: Sheet erosion evident

Gully erosion:
Occasional gullies: (check one) Shallow □ Medium □ Deep □ Heavy □
Frequent gullies: (check one) Shallow □ Deep □

Wind erosion: Deposition evident Removal evident

(Explanation of gully terms: Occasional gullies are gullies more than 100 feet apart. Frequent gullies are gullies less than 100 feet apart. Shallow gullies are those easily crossable by stock. Deep gullies are those deep enough to interfere with stock movements.)

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Elimination of destructive plants

(f) Fire guards

Other practices and improvements

(Fences, adjusted stocking, rodent control, poisonous-plant control)

REMARKS: St. JOHN'S WART bad. Some D. F. reproduction, but shows sign of grazing.

(Date)

U. S. GOVERNMENT PRINTING OFFICE 10-12090 (Range examiner)
RANGE SURVEY FIELD SHEET
(Reconnaissance Method)

Ranching unit: Rode Rd.
Examiner: Ed. Grieffe
Type: 3 - Fid - AGR

Avg. density: 175.2
Avg. % Pal.: 29.2
F. A. factor: 8.47

Grazing Capacity: F. A. factor: 175.2 × 14.5
Surface acres = 2.5

Forage acres + Forage acre allowance = 3
Animal months + 12 = Animal units.

TYPE WRITEUP
PRINCIPAL VEGETATION SPECIES

<table>
<thead>
<tr>
<th>Grasses</th>
<th>% Each Spec.</th>
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(Over)
COMMENTS

Current forage utilization: (check one) Over □ Proper □ Under □
Plant vigor: (check one) Poor □ Fair □ Good □
Range condition: (check one) Poor □ Fair □ Good □
Relative productiveness of site: (check one) Low □ Average □ High □

Watering places

<table>
<thead>
<tr>
<th>Kind: Lake, spring, tank, etc.</th>
<th>Distance</th>
<th>Permanent, temporary</th>
</tr>
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</table>

Kind of stock on range: (check one or more) Cattle □ Horses □ Sheep □ Goats □
Proper grazing period: (check one or more) Spring □ Summer □ Fall-winter □ Year long □

Wildlife Rodents bad in spots (Game, predators, rodents (species and abundance))

Soil erosion: Sheet erosion evident

Gully erosion:
- Occasional gullies: (check one) Shallow □ Medium □ Deep □ Heavy □
- Frequent gullies: (check one) Shallow □ Deep □

Wind erosion: Deposition evident Removal evident

(Explanation of gully terms: Occasional gullies are gullies more than 100 feet apart. Frequent gullies are gullies less than 100 feet apart. Shallow gullies are those easily crossable by stock. Deep gullies are those deep enough to interfere with stock movements.)

RECOMMENDATIONS ON PRACTICES

(Indicate location and extent)

(a) Natural reseeding by deferred grazing .................................................................
(b) Artificial reseeding ......................................................................................................
(d) Contour listing, furrowing, or subsoiling .................................................................
(f) Spreader dams and terraces .......................................................................................  
What additional water developments are needed to insure proper utilization? Location and type recommended .................................................................

Elimination of destructive plants ....................................................................................

(f) Fire guards ..................................................................................................................

Other practices and improvements .................................................................................

Remarks: Bracken fern & blackberry along edge of timber ........................................

(Date) 

U. S. GOVERNMENT PRINTING OFFICE  19-12690  

(Range examiner)
RANGE SURVEY FIELD SHEET
(Reconnaissance Method)

Ranching unit: Ridge Taps
Examiner: Ed Geiger
Date: NOV. 24, 1940
Location: Sec. 8 T. 9 S. R. 7 W. 3
Field sheet No. 12

Grazing Capacity: F. A. factor = 0.41 × 5.8 = Surface acres = 2.4
Forage acres ÷ Forage acre allowance = 12
Animal months + 12 = Animal units.

TYPE WRITEUP
PRINCIPAL VEGETATION SPECIES

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(Over)
COMMENTS

Current forage utilization: (check one) Over □ Proper □ Under □
Plant vigor: (check one) Poor □ Fair □ Good □
Range condition: (check one) Poor □ Fair □ Good □
Relative productiveness of site: (check one) Low □ Average □ High □

Watering places
(Kind: Lake, spring, tank, etc.) (Distance) (Permanent, temporary)

Kind of stock on range: (check one or more) Cattle □ Horses □ Sheep □ Goats □
Proper grazing period: (check one or more) Spring □ Summer □ Fall-winter □ Year long □

Wildlife
(Game, predators, rodents (species and abundance))

Soil erosion: Sheet erosion evident

Gully erosion:
Occasional gullies: (check one) Shallow □ Medium □ Deep □ Heavy □
Frequent gullies: (check one) Shallow □ Deep □

Wind erosion: Deposition evident Removal evident
(Explanations of gully terms: Occasional gullies are gullies more than 100 feet apart. Frequent gullies are gullies less than 100 feet apart. Shallow gullies are those easily crossable by stock. Deep gullies are those deep enough to interfere with stock movements.)

RECOMMENDATIONS ON PRACTICES
(Indicate location and extent)

(a) Natural reseeding by deferred grazing

(b) Artificial reseeding

(d) Contour listing, furrowing, or subsoiling

(f) Spreader dams and terraces

What additional water developments are needed to insure proper utilization? Location and type recommended

Elimination of destructive plants

(i) Fire guards

Other practices and improvements (Fences, adjusted stocking, rodent control, poison-plant control)

Remarks:

______________________________
(Date)

______________________________
(Range examiner)
RANCHING UNIT: Oak Cr.

EXAMINER: Ed Geiger

DATE: 11/24/40

LOCATION: SEC. 17, 18

FIELD SHEET NO.: 13

Grazing Capacity: F.A. factor × 18 = Surface acres = 2.2
Forage acres + Forage acre allowance = 12
Animal months ÷ 12 = Animal units.

**Type Writeup**

<table>
<thead>
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<th>PRINCIPAL VEGETATION SPECIES</th>
<th>50% Grasses</th>
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<th>Weight Palatable</th>
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Watering places

<table>
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</thead>
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Proper grazing period: (check one or more) Spring □ Summer □ Fall-winter □ Year long □

Wildlife

<table>
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<tr>
<th>Game, predators, rodents (species and abundance)</th>
</tr>
</thead>
</table>

Soil erosion: Sheet erosion evident

Gully erosion:

- Occasional gullies: (check one) Shallow □ Medium □ Deep □ Heavy □
- Frequent gullies: (check one) Shallow □ Deep □

Wind erosion: Deposition evident Removal evident

(Explanation of gully terms: Occasional gullies are gullies more than 100 feet apart. Frequent gullies are gullies less than 100 feet apart. Shallow gullies are those easily crossable by stock. Deep gullies are those deep enough to interfere with stock movements.)

RECOMMENDATIONS ON PRACTICES

(Indicate location and extent)

(a) Natural reseeding by deferred grazing

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(f) Spreader dams and terraces

What additional water developments are needed to insure proper utilization? Location and type recommended

Elimination of destructive plants

(t) Fire guards

Other practices and improvements

(Fences, adjusted stocking, rodent control, poisonous-plant control)

REMKS:

(Date) (Range examiner)
RANCHING UNIT: Oak Cr. Bottom
Examiner: Ed. Geiger
Type: I-P0-A-BRO

Avg. density: 7
Avg. % Pal.: 38.3
F. A. factor: 26.81

Grazing Capacity: F. A. factor \( \times \) 7 = 19
Surface acres = 19
Forage acres = Forage acre allowance = 9.5
Animal months \( \div 12 \) = 0.8 Animal units.

**TYPE WRITEUP**

**PRINCIPAL VEGETATION SPECIES**

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<th>Grasses, %</th>
<th>% Each Spec.</th>
<th>% Palatable</th>
<th>Weight Palatable</th>
<th>Weeds, %</th>
<th>% Each Spec.</th>
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<th>Browses, %</th>
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(over)
### COMMENTS

Current forage utilization: (check one) Over □ Proper □ Under □

Plant vigor: (check one) Poor □ Fair □ Good □

Range condition: (check one) Poor □ Fair □ Good □

Relative productiveness of site: (check one) Low □ Average □ High □

<table>
<thead>
<tr>
<th>Watering places</th>
<th>(Kind: Lake, spring, tank, etc.)</th>
<th>(Distance)</th>
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Kind of stock on range: (check one or more) Cattle □ Horses □ Sheep □ Goats □

Proper grazing period: (check one or more) Spring □ Summer □ Fall-winter □ Year long □

Wildlife (Game, predators, rodents (species and abundance))

Soil erosion: Sheet erosion evident

Gully erosion:
- Occasional gullies: (check one) Shallow □ Medium □ Deep □ Heavy □
- Frequent gullies: (check one) Shallow □ Deep □

Wind erosion: Deposition evident Removal evident

(Explanation of gully terms: Occasional gullies are gullies more than 100 feet apart. Frequent gullies are gullies less than 100 feet apart. Shallow gullies are those easily crossable by stock. Deep gullies are those deep enough to interfere with stock movements.)

### RECOMMENDATIONS ON PRACTICES

(Indicate location and extent)

(a) Natural reseeding by deferred grazing

(b) Artificial reseeding

(d) Contour listing, furrowing, or subsoiling

(f) Spreader dams and terraces

What additional water developments are needed to insure proper utilization? Location and type recommended

Elimination of destructive plants

(i) Fire guards

Other practices and improvements (Fences, adjusted stocking, rodent control, poisonous-plant control)

### REMARKS:

(Date) ____________________________

(Range examiner) __________________
RANCHING UNIT:  

Rancher:  

Examiner:  

Date:  

Location:  

Type Field sheet No:  

Avg. density:  

Avg. % Pal.:  

F. A. factor:  

Grazing Capacity:  

Surface acres =  

Forage acres ÷ Forage acre allowance = Animal months ÷ 12 = Animal units.

TYPE WRITEUP

PRINCIPAL VEGETATION SPECIES

<table>
<thead>
<tr>
<th>Grasses</th>
<th>% Each Spec.</th>
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<th>Weeds</th>
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(Over)
COMMENTS

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Plant vigor: (check one) Poor □ Fair □ Good □

Range condition: (check one) Poor □ Fair □ Good □

Relative productiveness of site: (check one) Low □ Average □ High □

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(Kind: Lake, spring, tank, etc.)

(Permanent, temporary)

Kind of stock on range: (check one or more) Cattle □ Horses □ Sheep □ Goats □

Proper grazing period: (check one or more) Spring □ Summer □ Fall-winter □ Year long □

Wildlife

Rodents (check one) Rodents □ Bad □ High □ N. of creek

(Game, predators, rodents (species and abundance))

Soil erosion: Sheet erosion evident

Gully erosion:

Occasional gullies: (check one) Shallow □ Medium □ Deep □ Heavy □

Frequent gullies: (check one) Shallow □ Deep □

Wind erosion: Deposition evident

Removal evident

(Explanation of gully terms: Occasional gullies are gullies more than 100 feet apart. Frequent gullies are gullies less than 100 feet apart. Shallow gullies are those easily crossable by stock. Deep gullies are those deep enough to interfere with stock movements.)

RECOMMENDATIONS ON PRACTICES

(Indicate location and extent)

(a) Natural reseeding by deferred grazing

(b) Artificial reseeding

(d) Contour listing, furrowing, or subsoiling

(f) Spreader dams and terraces

What additional water developments are needed to insure proper utilization? Location and type recommended

Elimination of destructive plants

(f) Fire guards

Other practices and improvements

(Pens, adjusted stocking, rodent control, poisonous-plant control)

Remarks: Soil very shallow

(Date) U. S. GOVERNMENT PRINTING OFFICE 10-12690 (Range examiner)
**RANGE SURVEY FIELD SHEET**
(Reconnaissance Method)

Ranching unit: [Oak Cr]  
Examiner: [Ed Geiger]
Type: [3]  
Avg. density: [3]  
F. A. factor: [110.5]

Date: [1/2/40]  
Location: [5W4, SEC. 1, 10]
Field sheet No.:

Grazing Capacity: F. A. factor × 3.0 = Surface acres = 3.3
Forage acres × Forage acre allowance = 1.7
Animal months ÷ 12 = Animal units.

### TYPE WRITEUP

**PRINCIPAL VEGETATION SPECIES**

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(Over)
COMMENTS

Current forage utilization: (check one) Over □ Proper □ Under □
Plant vigor: (check one) Poor □ Fair □ Good □
Range condition: (check one) Poor □ Fair □ Good □
Relative productiveness of site: (check one) Low □ Average □ High □

Watering places ____________________________________________________________
(Kind: Lake, spring, tank, etc.) (Distance) (Permanent, temporary)

Kind of stock on range: (check one or more) Cattle □ Horses □ Sheep □ Goats □
Proper grazing period: (check one or more) Spring □ Summer □ Fall-winter □ Year long □

Wildlife ________________________________________________________________
(Game, predators, rodents (species and abundance))

Soil erosion: Sheet erosion evident ________________________________
Gully erosion:
   Occasional gullies: (check one) Shallow □ Medium □ Deep □ Heavy □
   Frequent gullies: (check one) Shallow □ Deep □

Wind erosion: Deposition evident __________________ Removal evident ___________
(Explanation of gully terms: Occasional gullies are gullies more than 100 feet apart. Frequent gullies are gullies less than 100 feet apart. Shallow gullies are those easily crossable by stock. Deep gullies are those deep enough to interfere with stock movements.)

RECOMMENDATIONS ON PRACTICES
(Indicate location and extent)

(a) Natural reseeding by deferred grazing _______________________________________
(b) Artificial reseeding _______________________________________________________
(d) Contour listing, furrowing, or subsoiling ________________________________
(f) Spreader dams and terraces _______________________________________________

What additional water developments are needed to insure proper utilization? Location and type recommended ________________________________________________________________

Elimination of destructive plants _____________________________________________

(l) Fire guards _____________________________________________________________

Other practices and improvements ____________________________________________
(Fences, adjusted stocking, rodent control, poisonous-plant control)

REMARKS:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

(Date) ________________________
U. S. GOVERNMENT PRINTING OFFICE 16-12690 (Range examiner)
**RANGE SURVEY FIELD SHEET**
(Reconnaissance Method)

Ranching unit: Oak Cr.
Examiner: Ed Geiger
Type: 1-AGR-D-91
Avg. density: 5
Avg. % Pal.: 35.6
F. A. factor: 1.28

Grazing Capacity: F. A. factor \( \times \) Surface acres = 4.8
Forage acres ÷ Forage acre allowance = 2
Animal months ÷ 12 = 2 Animal units.

## TYPE WRITEUP
### PRINCIPAL VEGETATION SPECIES

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<th>Grasses, Spec.</th>
<th>% Each Spec.</th>
<th>% Palatable</th>
<th>Weight Palatable</th>
<th>Weeds, Spec.</th>
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(OVER)

10—12090
COMMENTS

Current forage utilization: (check one) Over □ Proper □ Under □
Plant vigor: (check one) Poor □ Fair □ Good □
Range condition: (check one) Poor □ Fair □ Good □
Relative productiveness of site: (check one) Low □ Average □ High □

Watering places

(Kind: Lake, spring, tank, etc.)
(Distance)
(Permanent, temporary)

Kind of stock on range: (check one or more) Cattle □ Horses □ Sheep □ Goats □
Proper grazing period: (check one or more) Spring □ Summer □ Fall-winter □ Year long □

Wildlife Rodents bad

(Dame, predators, rodents (species and abundance))

Soil erosion: Sheet erosion evident

Gully erosion:
Occasional gullies: (check one) Shallow □ Medium □ Deep □ Heavy □
Frequent gullies: (check one) Shallow □ Deep □

Wind erosion: Deposition evident Removal evident

(Explanation of gully terms: Occasional gullies are gullies more than 100 feet apart. Frequent gullies are gullies less than 100 feet apart. Shallow gullies are those easily crossable by stock. Deep gullies are those deep enough to interfere with stock movements.)

RECOMMENDATIONS ON PRACTICES

(Indicate location and extent)

(a) Natural reseeding by deferred grazing

(b) Artificial reseeding

(d) Contour listing, furrowing, or subsoiling

(f) Spreader dams and terraces

What additional water developments are needed to insure proper utilization? Location and type recommended

Elimination of destructive plants

(t) Fire guards

Other practices and improvements (Fences, adjusted stocking, rodent control, poisonous-plant control)

REMARKS:


(Date)


(Remarks)


## RANGE SURVEY FIELD SHEET
(Reconnaissance Method)

### Ranching unit: Oak Cr.
### Examiner: Ed Geiger
### Type: 10 - R. P. - C. A.

- **Avg. density**: 5
- **Avg. % Pal.**: 240
- **F. A. factor**: 1200

### Grazing Capacity:
- F. A. factor: 164
- Surface acres = 19.7
- Forage acres = 9.8
- Animal months = Animal units

### TYPE WRITEUP
**PRINCIPAL VEGETATION SPECIES**

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(OVER)
**COMMENTS**

Current forage utilization: (check one) Over □ Proper □ Under □
Plant vigor: (check one) Poor □ Fair □ Good □
Range condition: (check one) Poor □ Fair □ Good □
Relative productiveness of site: (check one) Low □ Average □ High □

<table>
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<tr>
<th>Watering places</th>
<th>(Kind: Lake, spring, tank, etc.)</th>
<th>(Distance)</th>
<th>(Permanent, temporary)</th>
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Kind of stock on range: (check one or more) Cattle □ Horses □ Sheep □ Goats □
Proper grazing period: (check one or more) Spring □ Summer □ Fall-winter □ Year long □

Wildlife (Game, predators, rodents (species and abundance))

Soil erosion: Sheet erosion evident
Gully erosion:
  - Occasional gullies: (check one) Shallow □ Medium □ Deep □ Heavy □
  - Frequent gullies: (check one) Shallow □ Deep □
Wind erosion: Deposition evident Removal evident
(Explanation of gully terms: Occasional gullies are gullies more than 100 feet apart. Frequent gullies are gullies less than 100 feet apart. Shallow gullies are those easily crossable by stock. Deep gullies are those deep enough to interfere with stock movements.)

**RECOMMENDATIONS ON PRACTICES**
(Indicate location and extent)

(a) Natural reseeding by deferred grazing
(b) Artificial reseeding
(d) Contour listing, furrowing, or subsoiling
(f) Spreader dams and terraces

What additional water developments are needed to insure proper utilization? Location and type recommended

Elimination of destructive plants

(t) Fire guards

Other practices and improvements (Fences, adjusted stocking, rodent control, poisonous-plant control)

**REMARKS:**
**RANGE SURVEY FIELD SHEET**  
(Reconnaissance Method)

**Ranching unit**  
**Examiner**  
**Type**  
**Avg. density**  
**F. A. factor**  
**Grazing Capacity:**
- F. A. factor \( \times 24.6 \) Surface acres = 25.09
- Forage acres + Forage acre allowance = 16.8
- Animal months + 12 = 10 Animal units.

**TYPE WRITEUP**

**PRINCIPAL VEGETATION SPECIES**

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(over)
## Comments

Current forage utilization: (check one) Over □ Proportion □ Under □  
Plant vigor: (check one) Poor □ Fair □ Good □  
Range condition: (check one) Poor □ Fair □ Good □  
Relative productiveness of site: (check one) Low □ Average □ High □

Watering places  | (Kind: Lake, spring, tank, etc.) | (Distance) | (Permanent, temporary)
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Kind of stock on range: (check one or more) Cattle □ Horses □ Sheep □ Goats □
Proper grazing period: (check one or more) Spring □ Summer □ Fall-winter □ Year long □

Wildlife  
(Game, predators, rodents (species and abundance))

Soil erosion: Sheet erosion evident

Gully erosion:
- Occasional gullies: (check one) Shallow □ Medium □ Deep □ Heavy □
- Frequent gullies: (check one) Shallow □ Deep □

Wind erosion: Deposition evident  
(Explanation of gully terms: Occasional gullies are gullies more than 100 feet apart. Frequent gullies are gullies less than 100 feet apart. Shallow gullies are those easily crossable by stock. Deep gullies are those deep enough to interfere with stock movements.)

### Recommendations on Practices

(Indicate location and extent)

(a) Natural reseeding by deferred grazing  
(b) Artificial reseeding  
(d) Contour listing, furrowing, or subsoiling  
(f) Spreader dams and terraces

What additional water developments are needed to insure proper utilization? Location and type recommended

Elimination of destructive plants

(t) Fire guards

Other practices and improvements  
(Fences, adjusted stocking, rodent control, poisonous-plant control)

### Remarks:

---

(Date)  
U. S. GOVERNMENT PRINTING OFFICE 10–12990  
(RANGE EXAMINER)